THE JOURNAL OF
AIR LAW AND COMMERCE

Vol. 23 SPRING, 1956 No. 2

FUTURE OF THE LOCAL SERVICE CARRIERS PUBLIC SERVICE VS. FEDERAL SUBSIDY

By Joseph P. Adams

Vice Chairman, Civil Aeronautics Board; Member, National Advisory Committee for Aeronautics; Graduate University of Washington, A.B., LL.B.; Member, State of Washington and District of Columbia Bar; Director of Aeronautics, State of Washington, 1946-1949; Naval Aviator, 1929 to date, Colonel, U. S. Marine Corps Reserve.

THE contribution by our local service airlines to the over-all public welfare of the United States has in recent years been so conclusive as to be no longer debatable. The volume and quality of service afforded the 3,000,000 passengers they are transporting in the current year, primarily to and from the medium and small size communities of the United States, leaves no doubt that the local service air carrier industry is in the truest sense of the term a public service industry. Along with its mounting public service contribution, however, there has also been a mounting dependence by these air carriers upon Federal subsidy support. While for each passenger carried, or for each plane mile or seat mile flown, the amount of subsidy has steadily declined, the fact remains that the total dollars of subsidy mail pay for the local air carrier industry has increased each year over the preceding year ever since 1947, the first year in which a representative number of local air carriers was operating.

This brings us to the principal question posed in this article — whether or not, as the public service contribution of the local air carrier industry continues to *increase,* the total dollars of Federal subsidy mail pay can ever be *reduced.* The purpose of this article is to demonstrate that substantial reductions *can* be effected in the dependence of this important segment of our air transport industry upon subsidy mail pay, and to offer concrete suggestions as to how this can be brought about. The suggested solution is predicated upon the threefold proposition that first, the air service offered by these carriers to the public must not be compromised; second, that the basic short-haul characteristics of the local carriers must be preserved; and

third, that the objectives must be accomplished within the framework of the Civil Aeronautics Act as it now stands.

It is of course a truism to state that a more efficient local service airplane would bring about a subsidy reduction, but that airplane as of the present time is two or three years away for most of the thirteen local service air carriers. Furthermore, such an airplane will not of itself result in enough of a reduction in the subsidy bill to accomplish self-sufficiency.

There have been various suggestions advanced recently for changes in the Civil Aeronautics Act which in effect would accord the local service carriers more favorable treatment in mail rate determinations than that accorded in the past to trunkline carriers which, like the local service carriers of today, were struggling just a few years ago with this same problem—how to further expand service to the public while ridding themselves of Government subsidy support. The writer has opposed these suggestions primarily because the present Act has demonstrably worked so well for all our other air carriers, and with imaginative and vigorous administration of its broad provisions by the Board, there appears to be no good reason why substantial reduction in subsidy cannot be accomplished in the local service industry while at the same time increasing its usefulness to the public.

With these points in mind, the balance of this article will first highlight the origin and growth of the local air service industry in the United States and will describe just how the present problem came about. A proposed solution to the problem will then be presented which should bring about the desired result of substantially reducing the subsidy to these carriers within the next few years.

I. The Problem—Subsidy vs. Public Service

Approximately 12 years ago the Civil Aeronautics Board began its experiment of developing a secondary or local air service group of carriers. As the original Board opinion makes clear, the problem of how to balance the public service, on the one hand, against Federal subsidy support, on the other, was anticipated even then.

> "In view of these considerations, it becomes apparent that the provision of a short-haul and local service with aircraft will be, in a very great measure, an experimental operation, and constitutes a problem with respect to which we have little or no information of a factual nature. But since the challenge exists, and the investigation has disclosed an eagerness on the part of the proponents of such a service to take up the challenge and since the experiment may well result in public benefit beyond present expectations, *the responsibility imposed upon us to encourage the development of an air transportation system properly adapted to the present and future needs of the commerce of the United States, the Postal Service, and the national defense, and to encourage the development of civil aeronautics generally, justifies us, within reasonable bounds, in translating into results of experience what are now plans and estimates.*

> "In the absence of any definite maximum limit on mail pay incorporated in the certificates that are granted, the issuance of temporary certificates for a limited number of years, as previously suggested, will serve as a safeguard against a static or progressively increasing dependence on the Government; and will permit of the subsequent giving of permanent status only to such services as have shown during the life of a temporary certificate that *they are capable of operation without undue cost to the Government and of a progressive reduction of such costs.*"[1] (Emphasis added.)

The decade that followed this Board decision saw the creation of local air carrier systems in practically all areas of the United States. In some cases, the operating authority of the newly created local air carriers was not renewed when the term of their certificates expired.

Nevertheless, by 1953 thirteen local carriers had survived and although their subsidy needs had steadily increased, as has already been indicated, the survivors requested permanent certificates in recognition of their public service contribution. They were instrumental in having a bill introduced to accomplish this result, and it was the privilege of the writer to testify before the Interstate and Foreign Commerce Committees of both Houses of Congress in February of 1955, in support of such legislation.

> "I would therefore urge you to pass permanent certification legislation as incorporated in S. 651 and thereby give tangible recognition to the broad public interests already served by our local carriers and as evidence of your faith in the value of their continued operation for an indefinite period of time. The passage of this legislation at this time will be a recognition on your part of the 20 percent increase in business which these carriers have brought about this past year over the preceding year. It will be tangible evidence of your interest in the 2½ million people transported by these small carriers in 1954. *On the other hand, I can assure you that for my part, the passage of this legislation will alter not to the slightest degree my interest in reducing, or my ability to reduce, our Federal subsidy bill—both in the processing of mail rate cases and in further improving the route systems of each and every one of these local air carriers as the opportunity arises.*"[2] (Emphasis added.)

It will be noted that this testimony was quite candid in recognizing *that considerable effort would still be required in the subsidy mail pay field even if permanent certificates were granted the local air carriers.* The passage of this legislation in May of 1955 and the subsequent awards of permanent certificates to these local carriers by the Board *have not in any sense removed this problem.*

Congress, itself, is vitally concerned with the continued improvement and development of our local air service industry, both in terms of increased service to the traveling public and reduced dependence upon the Government for subsidy support. As is apparent from the

---

[1] Local, Feeder, and Pick-up Air Service, 6 CAB 1 (1944).
[2] Hearings before a Senate Subcommittee of the Committee on Interstate and Foreign Commerce on S.651, 84th Cong., 1st Sess. (1955) p. 199.

reports of the Interstate and Foreign Commerce Committees of both Houses of Congress, the permanent certification legislation was passed in recognition of the tremendous public service which the local carriers have rendered successfully to almost 400 medium size and smaller communities in the United States over a period of many years. Nevertheless, the committee reports indicate that *the permanent certificates would in on sense be the "cure-all" for the many problems facing the local service carriers in their future development.* Special recognition was given by both Houses of Congress to the fact that even with permanent certificates, the degree of dependence of these carriers upon subsidy support would be great, and that it was up to the Civil Aeronautics Board under section 401 (h) of the Act to so strengthen the local carrier routes that they would eventually achieve a self-sufficient status—free of subsidy mail pay. In its March 22, 1955, report, at page 9, the House Committee alluded clearly to this problem in the following language:

> "One of the arguments advanced a year ago in opposition to this legislation was that permanent certification would interfere with the orderly development and improvement of the local-service routes. It cannot be doubted that the local carriers are anxious to improve and develop their routes and the committee cannot go along with the theory that permanent certification will destroy or weaken the incentive of management to increase revenues and provide better service.
>
> "*This legislation does not substantially change the power of the Board to alter and modify the route structures of the local-service carriers.* It is believed that section 401(h) of the Civil Aeronautics Act, which gives the Board power to 'alter, amend, modify or suspend such certificate, in whole or in part' provides all the authority necessary for route development. The committee could find no indication that the granting of permanent certificates to the trunk carriers in 1938 had any adverse effect on the development of their route structures."[3] (Emphasis added.)

Even more directly in point was the House Committee report of July 13, 1954, which gave what appear to be unmistakable instructions to the Civil Aeronautics Board in the following terms:

> "This committee hopes that the Civil Aeronautics Board will devote the time previously spent on periodic renewal proceedings for the local airlines in a *continuing effort to strengthen these carriers. The committee feels that the transportation market for the local airlines is sufficiently promising to enable them within a relatively few years, to achieve financial independence.*
>
> * * *
>
> "Full development of local air service is not a problem that will be solved finally by this bill. It is a continuing problem that will require the continuing efforts of the Civil Aeronautics Board and continuing interest and attention of Congress. *The committee believes that the enactment of this legislation is the essential first step necessary right now if the ultimate goal of subsidy-free, ade-*

[3] House of Representatives Report No. 265, 84th Cong., 1st Sess., Amend Section 401(e) of the Civil Aeronautics Act of 1938, as amended, March 22, 1955.

quate air service to the smaller communities in the country is to be achieved."[4] (Emphasis added.)

In a similar vein, the Senate Committee had the following to say in its March 28, 1955, report on the permanent certification bill:

" . . . In some areas the experiment has undoubtedly been in effect long enough to have local service routes well establishd and the failure of the Board to grant the carriers permanent certification for those routes is not understood. Your committee on the other hand readily recognizes the fact that *in other areas considerable evolution is still essential to secure the most economical and most subsidy-free local service operation for some of the carriers.*

"Your committee is satisfied, however, that section 401(h) of the Civil Aeronautics Act, by vesting the Board with the power 'to alter, amend, modify, or suspend,' in whole or in part, any certificate, gives the Board the power to add new points and to eliminate uneconomical points, be they terminals or intermediate points, and to revise entire route segments as the public interest requires. *The history of the development of the trunk airline routes gives your committee confidence that section 401(h) provides the Board with all the authority necessary for proper route development.* Action by Congress at this time in requiring the Civil Aeronautics Board to grant permanent 'grandfather' certificates to the present local service carriers will not interfere in the slightest with the continued orderly evaluation of the route systems of these carriers."[5] (Emphasis added.)

The Comptroller General of the United States in his October 1955, audit report on the Civil Aeronautics Board to the Congress has put his finger almost exactly upon the principal point of this article. At page 21 of his report, he said:

"The financial well-being of any carrier is almost wholly dependent upon the existence of a generally strong route system, a system which will provide access to major population centers and permit reasonably long-haul operations. *Under their present route structures the local service carriers cannot be expected to achieve financially self-sufficient routes in the foreseeable future.*"

II. Recent Operating Results of the Local Air Carriers Underlining the Problem of Subsidy vs. Public Service

Since any intelligent effort to solve a knotty problem is inevitably predicated upon a clear statement and understanding of that problem it is pertinent here to set forth the operating results of the local air carrier industry in recent years. A knowledge of these operating results will aid in an understanding of just what the problem is and will also suggest its solution.

As is clearly shown in the following trend chart, the local air carrier industry has, ever since 1947, steadily increased the volume of service offered to the public (available seat miles), and at an even

[4] House of Representatives, Report No. 2195, 83rd Cong., 2d Sess., Amending Section 401(e) of the Civil Aeronautics Act, July 13, 1954.

[5] Senate, Report No. 124, Calendar No. 127, 84th Cong., 1st Sess., Providing Permanent Certificates for Local Service Air Carriers, March 28, 1955.

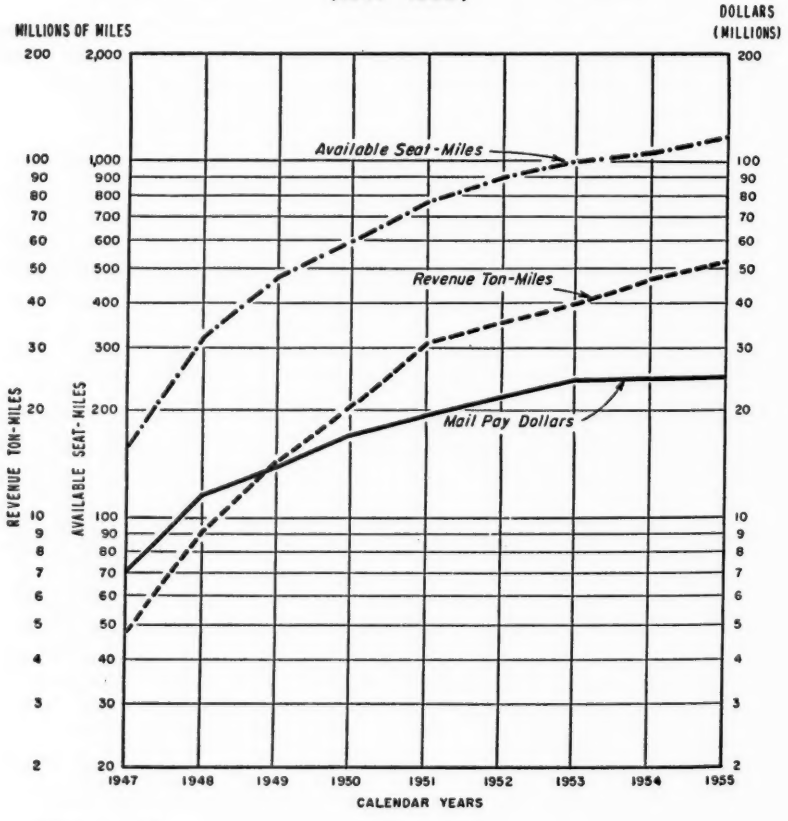
greater rate has increased the volume of traffic actually carried by it (revenue ton miles).

A somewhat different trend is shown for the total dollars of mail pay received by the local air carriers. Total mail payments increased at an almost constant rate from 1948 to 1953. Since 1953, these payments, while still increasing, have increased at a considerably lesser rate than in earlier years.

Similarly, as shown in trend chart No. II, non-mail revenues and operating expenses for the local air carrier industry have increased steadily ever since 1947.

CHART I

TRENDS IN LOCAL AIR CARRIER SERVICE, TRAFFIC AND MAIL PAY VOLUMES (1947-1955)



SOURCE: Appendix I

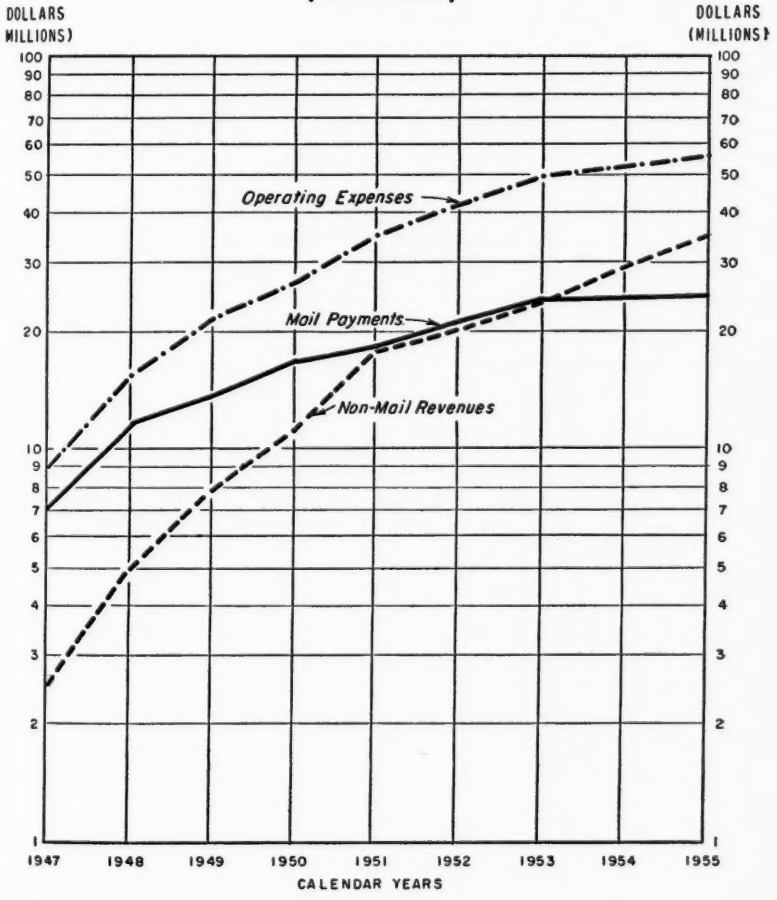
Since the rate of increase of operating expenses has fallen off somewhat since 1953, while at the same time the rate of increase of non-mail

revenues has in comparision remained steady, the local air carriers and the traveling public can with good reason feel encouraged.

It is particularly gratifying to call attention to the favorable trend of the last three years in non-mail revenues as compared to operating expenses. Just three years ago,[6] the writer expressed considerable concern over the much less optimistic operating record attained by the local air carriers from 1951 through June 30, 1953. Since 1953, fortunately, our local air carriers have succeeded to some degree in control-

CHART II

TRENDS IN LOCAL AIR CARRIER EXPENSE, NON-MAIL REVENUE AND MAIL PAY VOLUMES (1947 - 1955)



SOURCE: Appendix I

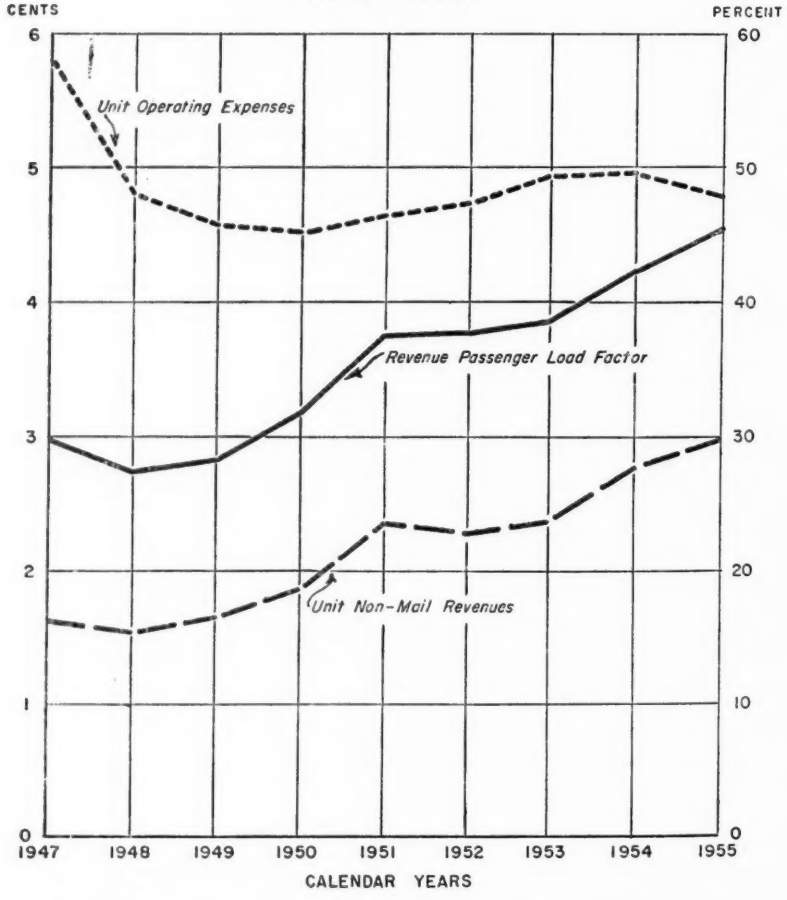
[6] "Future Local Airline Service Depends on State Support," by Joseph P. Adams, 20 JOURNAL OF AIR LAW AND COMMERCE, 403, Autumn, (1953).

ling expenses and to a much greater degree in increasing commercial revenues.

It should be noted that the dependence of these carriers upon mail pay as a source of revenue has for some time now remained almost static at the 24 to 25 million dollar annual level. Recent increases in services rendered and services actually sold to our travelers have fortunately *not* carried with them comparably substantial increases in Federal mail pay support. This has been so, as shown by Chart III, because of the ability of our local air carriers to bring

CHART III

LOCAL AIR CARRIER PASSENGER LOAD FACTORS, AND NON-MAIL REVENUES AND OPERATING EXPENSES PER AVAILABLE SEAT MILE (1947 - 1955)



SOURCE: Appendix I

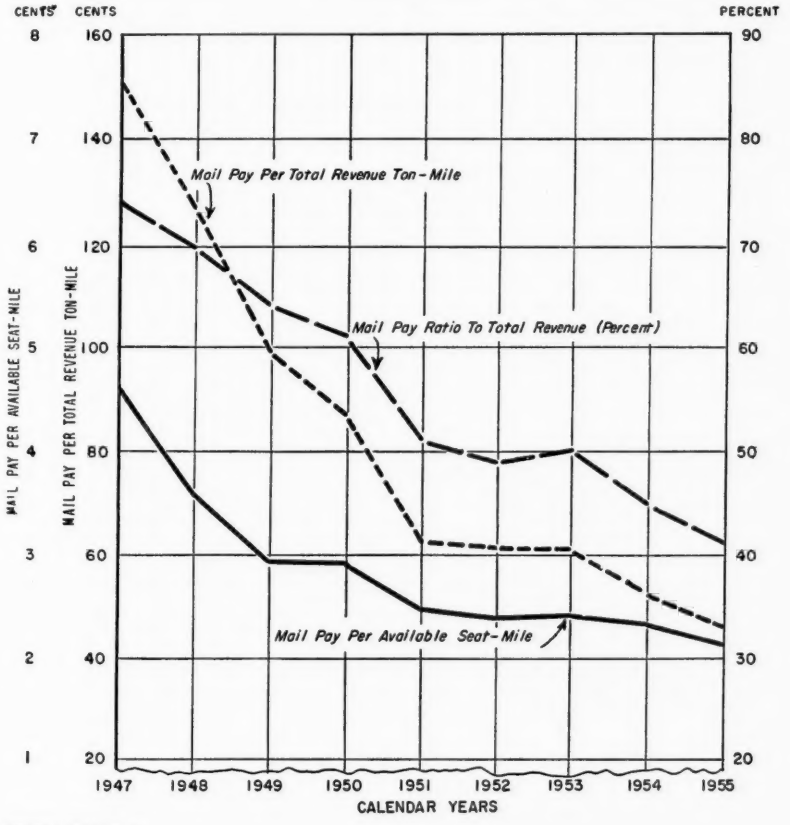
about a steady increase in revenue passenger load factor (the number of seats on each airplane actually occupied, in terms of percent). For the year 1955, the entire local air carrier industry had attained a passenger load factor in excess of 45 percent, a new, all-time high.

Accompanying this steadily increasing load factor, and due almost entirely to it, was a similar increase in commercial or nonmail revenues for each available seat mile flown. And finally, it should be noted from Chart III that our local carrier industry was able in 1955 to reduce its operating expense for each seat mile by some four percent—the first such reduction which had taken place in unit operating expenses since 1950.

As a result of these favorable recent improvements in load factors and unit revenues and expenses, the total mail payments to the local

CHART IV

MAIL PAY OF LOCAL AIR CARRIERS RELATED TO TRAFFIC, SERVICE AND TOTAL REVENUES (1947 - 1955)



SOURCE: Appendix I

air carrier industry, when related to the total service performed, have declined. As is shown in Chart IV, the trend in mail pay when measured in any one of these three ways has been more or less steadily declining ever since 1947.

Although in 1952 and 1953 unit mail pay was almost at the same level it had been in 1951, the downward trend is self-evident during the last two years, 1954 and 1955. As a result, for example, whereas mail pay approximated 50 percent of the local carrier industry's total revenues from 1951 to 1953, this percentage had dropped to just over 40 percent for the calendar year 1955. The local air carrier industry can be justifiably proud of all of the foregoing favorable trends, particularly those indicating its declining dependence upon mail pay on a unit basis in the last two years.

An even more impressive picture of the accomplishments of the local air carrier industry is obtained by comparing its record with that achieved by our trunkline industry during the pre-war period. Few people realize how far the local service carrier industry of today is ahead of the entire trunkline industry as it existed in 1939. Since in 1955 our local air carriers served almost 100 *more* airports than did the trunklines in 1939, carried about 1,200,000 *more* passengers than did the trunklines 16 years ago, and earned in commercial or nonmail revenues approximately as much as did all 16 trunklines in 1939, one is justified in concluding that the present local air service industry is in many significant respects well ahead of the pre-war trunkline industry.

The following table summarizes these and other significant operating facts of the local service industry of 1955 and compares it with the trunkline industry of 1939 in terms of the totals achieved by all 16 trunklines at that time as well as the totals for 12 trunklines, excluding the Big Four.

	1939 Trunkline Data		
	16 Trunk Total	*Trunk Total Excluding Big Four*	*1955 Local Service Total*
Number Stations Served	275	138	365
Rev. Passengers (000)	1,710	428	2,891
Rev. Passengers Miles (000)	679,526	120,545	523,298
Total Nonmail Revenue (000)	$37,074	$6,055	$35,337

It is interesting to note that revenues *exclusive of mail pay* accounted in 1955 for about 62 percent of the total revenues earned by our local service carriers. This figure is within five percentage points of the same ratio for the 16 trunklines and 13 percentage points *ahead* of the same ratio for the 12 smaller trunklines of 1939. Furthermore, as shown in the table, our present-day local service carriers serve almost three times the number of cities served by the 12 smaller trunklines in 1939, carry almost seven times as many passengers each year, generate four times as many revenue passenger miles and earn almost six times

as much nonmail revenue each year as did this group of 12 small trunklines 16 years ago.

The foregoing summary amply demonstrates how substantial has been the progress of our local air carriers over their present systems, whether that progress is measured simply by itself over a period of time, or in terms of how its 1955 record of service to the public compares with the public service record of our trunklines in the pre-war period. On the other hand, there is a limit beyond which our local carriers on their present systems cannot achieve further substantial increases in load factors and unit revenues. Similarly, there is also a limit below which no one familiar with airline operating economics can expect unit expenses to decline. This will be particularly true during the next two or three-year period when our local air carriers must be largely dependent for their operation upon a DC-3 airplane fleet.

The unit cost to the local air carriers of operating each available seat-mile (See Chart III) merits close examination. The lowest unit cost ever achieved by the local air carriers was lightly above 4½ cents per available seat-mile. It is true that from 1954 to 1955 the available seat-mile cost for the local carriers dropped slightly, but the 1955 level was still substantially above that of 1950 and the slight decline in unit cost in the last year can be largely accounted for by the substantial increase in the volume of available seat-miles flown by the local air carriers.

That continued and substantial progress in the next few years will probably *not* be made by the local carriers in further reducing their dependence on mail pay support is also indicated by the very nature of the route systems which they operate. In the first place, it is common knowledge, of course, that the size of the average community served by the local carrier industry is considerably smaller than is the average city served by the trunkline carriers. The local air carriers are therefore considerably more limited, relatively, in the traffic potential available to them no matter how vigorous are their sales efforts.

Even aside from this more limited traffic potential, the traffic generating programs of the local carriers can only meet with relatively modest success in the next few years because the transportation service they will be endeavoring to sell on their DC-3 equipment simply does not have the passenger appeal of more modern pressurized and faster post-war aircraft. It is also generally admitted today that on a seat-mile basis the DC-3 aircraft has inherent cost disadvantages so that we cannot fairly expect continued progress to be made indefinitely in the area of further substantial unit cost reductions.

In light of this somewhat pessimistic future outlook as to unit costs and unit revenues, it is pertinent here to stress also that the total Federal mail pay bill incurred by the local service carriers has not declined since 1953 and is, in fact, increasing slightly. (See Charts I and II.) The total bill has exceeded 24 million dollars each year for the last

three years, and in fact, has increased from 24.4 million dollars in 1953 to an estimated 24.8 million dollars for the calendar year 1955. Of this total, furthermore, about 95 percent is subsidy mail pay. For these reasons it appears most pertinent to explore any and all means by which this large subsidy bill can be reduced, without in any way compromising the laudable public service record of the local air carrier industry.

III. Proposed Solution of the Problem

The fact that the total mail pay bill for our local carriers is increasing and that in addition, even on a unit basis the favorable mail pay trends of the last two years for reasons aforementioned cannot be expected to go on indefinitely, establishes the need for some affirmative course of action which will increase the opportunity for our local air carrier industry to improve its operating results and to reduce its dependence upon Federal mail pay support. The purpose here is to indicate that there are at least two courses of action which can and should be taken to bring about these results. Both suggestions are designed to increase the commercial revenues available in the next few years to the local air carriers. Both suggestions will require some type of affirmative action on the part of the Civil Aeronautics Board and are to a lesser degree dependent on the joint efforts of the local and trunkline industries.

Briefly stated, the first proposal is for a more liberal attitude by the Board in the matter of route improvements through the lifting of operating restrictions from our local air carriers. The second proposal calls for a more favorable distribution of interline ticket revenues to our local air carrier industry than has obtained in the past.

A. *Operating characteristics of local carrier routes must be improved.* As to the first, or route improvement proposals, the Civil Aeronautics Board must, of course, proceed with caution lest it do serious harm to the trunkline industry. No useful purpose would be served if the Board succeeded in reducing the subsidy bill of the local air carriers only to have several of the trunklines revert to a subsidy basis of mail pay after their many years of effort to achieve their present subsidy free status.

It is also of cardinal importance that the local, relatively short-haul characteristics of the industry, be preserved. By this is meant that the smaller and medium-size cities served by the local air carriers *must* continue to receive the type of frequent arrivals and departures which has always characterized the service of the local airline industry. The writer does not espouse the reduction of the industry's dependence upon mail pay subsidy if the price of such a reduction is the virtual abandonment of adequate airline service to the many smaller communities within the United States.

If the problem of strengthening the route structures of our local air carriers is approached in an intelligent and judicious fashion, how-

ever, no disastrous results need follow. The recent new route grants awarded to our small and medium size trunklines are in and of themselves ample proof of the fact that the Board wishes these smaller trunklines to fulfill a much larger role than ever before in some of the most lucrative revenue-producing markets in the United States. In the case of at least six of the medium size trunklines – Braniff, Capital, Continental, Delta, Northwest and Western—the route systems have been sufficiently strengthened so that they should now be less resistant to the efforts of the local carrier industry also to gain access to somewhat richer revenue-producing markets—markets already traversed by local air carrier *routes,* but not *served* effectively by the locals because of operating restrictions. It would seem entirely reasonable, in other words, that these medium trunks could now allow the local air carriers in their areas to participate more effectively in at least some of the secondary trunkline markets.

The impressive operating record of the entire local air carrier industry during the past decade is, of course, one of the strongest arguments for its continued expansion. The charts already presented and discussed would seem to justify the conclusion that our local air carriers have done a good job in the best interests of the public, particularly considering the revenue sources they have had to work with and the restrictions under which they have labored. It would seem to follow logically that if their systems were strengthened by the removal of some of the uneconomic operating restrictions presently in effect on their systems, these carriers could and would achieve higher load factors and revenues and at the same time reduce their dependence upon Federal subsidy without in any way compromising their contribution to the service needs of the traveling public in the smaller communities.

Aside from the record of the industry as a whole, that of individual carriers in particular markets is well worth mentioning. Included among the more significant examples is the record of Southwest Airways at the various intermediate cities on its system in California between the terminals, Los Angeles and San Francisco. Allegheny Airlines' note-worthy record between Pittsburgh, Cleveland and Atlantic City is another example. North Central Airlines' service pattern between Chicago and Detroit has during 1955 and 1956 provided the intermediate points of South Bend, Kalamazoo, Battle Creek and Jackson, with substantial improvements in airline service, ever since the trunkline which had formerly served these cities withdrew and North Central's service was inaugurated. In contrast to the trunkline's *one* daily round trip to these intermediate points between Chicago and Detriot, North Central's schedules have totaled as many as *seven daily round trips.*[7]

[7] The fact that the issue of selection of carrier in the Detroit-Chicago Local Service Case is now before the Courts is, of course, recognized. The service improvement of North Central Airlines over that previously offered by the trunkline carrier is nevertheless worthy of note.

It is also significant to point out that many of the smaller communities throughout the country have become aware of service records like this one and are either suggesting or actually petitioning that the Board replace their trunkline service with that of a local air carrier.[8] Space does not permit a detailed recounting here of the many other successes achieved by individual local air carriers in numerous airline markets. Suffice it to say that not only in the over-all industry trends, but also in their records achieved in individual markets, our local air carrier industry has proven its ability to take over the secondary air travel markets in which our trunkline carriers are no longer vitally interested; and in addition, to offer a valuable supplemental service to that of the trunks in some of the high-density, relatively short-haul markets which may still be counted as primary trunkline markets.

The need of our local air carriers for an opportunity to serve on a one-stop or non-stop basis the large cities and markets on their present routes is finally demonstrated by a comparision of the present stage of development of the local carriers with the development of the trunklines from the pre-war period to the present time. This comparison points out in specific terms the need of our local air carriers for substantial increases in traffic density—revenue ton-miles per station—and a need, also, for an increase in haul—the average length of passenger trip over their systems. Both traffic density and haul for the locals can be substantially improved even with their present equipment and, of course, within the framework of the Civil Aeronautics Act, given an enlightened Board policy directed toward such improvement.

The following table compares the local air carrier industry of 1955 with the trunklines of 1939 and 1955, showing in certain significant indexes the improvements in operating economics that have taken place in the case of the trunks over the past 16 years.

		Trunkline Totals		
	1955 Local Carrier Total	*1939*	*1955*	*Increase (Percent) 1955 Over 1939*
Number of Stations Served	365	275	588	114%
Rev. Ton-Miles Flown (000)	53,695	76,464	2,183,712	2756%
Rev. Ton-Miles per Station (000)	147	278	3,713	1236%
Length of Passenger Trip	181	397	557	40%
Est. Subsidy Mail Pay (000)	$23,564	$13,050	$2,676	–80%
Estimated Subsidy Mail Payments as Percent of Total Revenue	41.2%	23.5%	0.2%	..

[8] See, for example, Resolution of the City Council of the City of Duluth, Minn., adopted Jan. 23, 1956, and the Resolution adopted by the Board of Directors of the Superior Association of Commerce, Superior, Wisc., dated May 21, 1956. Also see correspondence filed with the Board by Mason City, and Waterloo, Iowa, in connection with the Route 106 Case, Braniff Airways, Docket No. 6050 *et al.*, Order Serial No. E-8841, December 23, 1954.

It should be clearly understood that the purpose of this table is *not* to argue that the trunkline industry could have made its phenomenal record of progress even with the DC-3 airplane; nor that the Board and the industry should cooperate in an all-out effort to *triple* the length of passenger trip for the local air carriers; nor to increase their revenue ton-miles per station some 1,200 percent. Obviously, the tremendous record of the trunkline industry since 1939 is due in no small part to the introduction of modern aircraft with its pressurization, reliability, high speed and low seat-mile cost.

The foregoing table has been shown simply to indicate how far the local air carriers of 1955 still are behind their trunkline counterparts in terms of total volume of traffic carried, over-all traffic density and length of passenger trip; and by the same token, to indicate those specific areas in which the Board *must* improve the basic economics of local air carrier operation. It follows from the table and from all the foregoing, in the opinion of the writer, that until the total local carrier traffic volume is increased substantially, so that the carriers can realize significant increases in revenue ton-miles per station and increases also in the average length of passenger trip (or size of ticket sold), the dependence of the local air carrier industry upon Federal subsidy support cannot be expected to decline.

On the other hand, if the operating restrictions of the local carriers were relaxed somewhat, their traffic density would increase, as would the average length of passenger trip. Their improved operations would permit them to offer a more attractive service over their presently authorized routes between terminal points now served by them only on a time-consuming, multiple-stop basis. Not only would their revenues increase sharply but their unit operating expenses would decline, with the result that their dependence upon Federal subsidy would also decline. The decline in the subsidy would be substantial for the *entire* local air carrier industry and in the cases of four or five of our strongest local airlines, *subsidy might be eliminated entirely.*

Such improvements in the economics of local air carrier operations will require, of course, a determined effort on the part of the local air carriers themselves and will in large degree inevitably depend upon the support of the Civil Aeronautics Board. The entire program of local air carrier operational improvement would, of course, be made easier of attainment if the trunklines also cooperated. Fortunately, it is possible to report here that there are significant indications that this cooperation will be forthcoming. Several of the trunks have voluntarily dropped cities from their systems which, though accounting for sizable populations, have been so located that adequate trunkline service to them had become either impractical or uneconomic.[9]

[9] See, for example, TWA position in *New York-Chicago Case*, Order No. E-9537, September 1, 1955, as to its short-haul Detroit-Cincinnati route; American Airlines' position in *Chicago-Detroit Route 7 Local Service Case*, Order No. E-8975, Feb. 28, 1955, agreeing to its removal from South Bend, Kalamazoo, Battle Creek and Jackson/Ann Arbor.

In a recent case involving a short route segment containing five large cities—Detroit, Toledo, Columbus, Dayton and Cincinnati—the trunkline involved, Delta Air Lines, has not only agreed to interpose no objection to the introduction of local service over the entire segment, but has also agreed to accept a long-haul restriction precluding the operation by it of turn-around service between the terminal points Detroit and Cincinnati.[10]

It is this kind of cooperative effort on the part of the trunklines which would be helpful in effecting a substantial reduction in the local air carrier industry subsidy bill. The writer believes that such cooperation will *increase,* once the trunkline carriers are assured that the Board will direct the further development of the local air carriers with due regard to their legitimate interests and the obligations of the local carriers to their communities. In this connection it is suggested that the Civil Aeronautics Board and the entire airline industry seriously consider, as a guarantee that such will be the case, the adoption of a practical rule of thumb which will enable the local air carriers to improve their operating economics and at the same time preclude any tendency on their part to overlook their public service obligations to their smaller intermediate points. *This rule would require the local carriers to provide a minimum of one or two round trips per day to every small city served by them with a population of, for example, 5,000 to 30,000 people. Over and above that minimum service pattern, however, the suggested rule would allow the local air carriers unlimited non-stop or perhaps one-stop service between the larger terminal points.*

Such a suggestion has in fact already been made by the Civil Aeronautics Board in a recent case involving a new local air carrier route beween Atlanta, Georgia, and Panama City, Florida, via the intermediate points, Dothan and Columbus. In its opinion awarding the route to Southern Airways the Board put it this way:

> " . . . Having in mind the substantial needs shown by Columbus and Dothan for new and additional service, it is our conclusion Southern should be required by its certificate to provide at least two daily round trips to each point from Panama City and Atlanta, before offering Panama City-Atlanta nonstop service. *This will insure proper service for Dothan and Columbus on the new segment. Beyond this limitation, we find no occasion for imposing further restrictions, since there is no problem here of protecting other carriers against diversion of terminal-to-terminal traffiic."*[11] (Emphasis added.)

---

[10] TWA Cincinnati-Detroit Route Transfer Case, Docket No. 7378, Brief of Delta Air Lines, Inc. to the Examiner, dated March 26, 1956, page 53. It is recognized, of course, that as this is written this case has not yet been decided by the Board, and there is no intention here to prejudge the matter. The position taken by the trunkline in the matter is a fact of considerable significance to this article and is cited for that purpose only.

[11] Panama City, Florida-Atlanta Investigation, Docket No. 7233 *et al.*, Order No. E-10332, decided May 29, 1956.

The philosophy expressed in this recent Board decision must obviously be more widely adopted if the local air carrier subsidy bill is to be reduced or in some cases eliminated entirely. It must be adopted not only in such cases as the Atlanta-Panama City Case, where no trunkline service existed between the terminals, but also with respect to trunkline segments with strong terminals where there is little or no basis to fear that the local air carrier will be a really effective competitor.

Route improvement for the local air carriers, then, through a program of lifting uneconomic operating restrictions, will reduce substantially the subsidy reqired by the local airline industry and in the cases of our strongest local air carriers will eliminate subsidy entirely. As already pointed out such a program can be effectuated by the Board without changing the Civil Aeronautics Act. The program called for here, furthermore, would be in accord with Congressional expressions on strengthening the systems of the local air carriers.

B. *Local Carrier Share of Interline Fares Might Be Increased.* Aside from strengthening the route systems of the local air carriers, another possibility of reducing their dependence upon Federal subsidy support lies in their obtaining a greater share of the proceeds from interline sales. Our local airlines have since their inception been dependent for a substantial portion of their revenues upon interline business—air passengers which they have originated or terminated, but whose total trips involved travel over trunkline routes for a major portion of the journey. It was because of the importance of these interline passengers to the local air carriers that the local air industry was for many years referred to as the feeder line industry.

The complexities involved in determining just how each of two carriers should share in the ticket of the passenger whose journey includes travel over the routes of both are admittedly not capable of easy solution. At various times in the past and in the cases of particular carriers, the distribution of the proceeds of such an interline fare was made on the basis of *the mileage traveled* on the systems of the respective carriers. Today the usual rule is that instead of the mileage, *the respective rates* are used as a basis for distributing the entire value of the ticket among the air carriers concerned. This method is called the "rate pro-rate method" as contrasted with the older "mileage pro-rate method."

It is common knowledge that at various times in the past certain of our shorter-haul trunklines endeavored to obtain from the longer-haul carriers more than their proportional share of the ticket (whether that share was measured by relative rates or relative mileages) because of the substantial cost involved in selling the ticket and boarding the passenger in the first instance. Such efforts were, however, generally unsuccessful, because of the competitive conditions in the industry among the trunklines and the fact that some of the shorter-haul carriers gradually became, or hoped to become, long-haul carriers them-

selves. Also, some carriers did not relish the idea that a particular short-haul carrier might receive from longer-haul carriers much greater numbers of interline passengers than those which it originated on its own system and transferred to them.

The local air carrier industry of today, however, confined as each member of that industry is to a relatively small area of this country, is a sufficiently autonomous group, and is sufficiently different in its present and foreseeable operation so that serious consideration should again be given to the problem of redistributing the proceeds from interline passenger fares in a manner more equitable to the locals. More than 23 percent of all passengers carried by local airlines, accounting for almost 40 percent of their revenues, are transferred to the trunklines. The average ticket sale of a local airline in 1955 was approximately $11.52, but the average passenger originated by the local carrier industry and transferred to the trunklines brought *more than thirty dollars each* in revenue to the trunkline industry.

The following table summarizes the interline passengers shared by the local service carriers and the trunklines during three recent years.

LOCAL SERVICE—TRUNKLINE
INTERLINE PASSENGER SUMMARY

Passengers	*1952*	*1954*	*1955*
Contribution of locals to trunks (000)	309	539	677
Contribution of trunks to locals (000)	457	731	1,014
Contribution of locals as percent of that of trunks	68%	74%	67%
Passenger Revenues			
Contribution of locals to trunks (000)	$9,714	$16,306	$20,510
Contribution of trunks to locals (000)	5,311	8,619	10,973
Contribution of locals as percent of that of trunks	183%	189%	187%

It will be noted, of course, that the local air carriers contributed only about 67 percent as many passengers to the trunklines as did the trunklines to the locals in 1955. On the other hand, in terms of *revenue value,* the contribution of the local carriers to the trunklines was almost *twice as great* as that of the trunklines to the local air carrier industry.

The figures in the table, together with earlier data describing the nature of the local air carrier industry, have demonstrated the high cost, relatively low-revenue type of operation which characterizes the industry. Moreover, in a practical sense all 13 of the local air carriers might be regarded as sales agents for the larger, long-haul and more profitable trunklines of the United States. It does not seem unreasonable to this writer, in light of these facts, to urge the possibility of a new distribution of interline passenger revenues upon the entire airline industry which, in favoring the local air carriers more than does the present system, would recognize their promotional value to the trunklines, their need for more revenues, and the higher cost nature

of their operations. If such a redistribution of interline fares were accomplished, the local service industry's dependence upon subsidy support would be substantially reduced. Moreover, a more liberal distribution of joint fares could be expected to stimulate the promotional efforts of the local carriers in selling long-haul transportation and thus also benefit the trunklines. It would be preferable, of course, if the entire airline industry came up with a good solution to this problem, but failing that, it would seem to be incumbent upon the Board to enter upon an investigation of this problem.

Conclusion

The foregoing presentation of the subsidy versus service problem faced by the local airline industry of the United States has been an attempt to describe what is unquestionably one of the most serious problems facing the entire United States air transportation system today. The suggested solution to this crucial problem is, in the opinion of the writer, the only feasible one within the framework of the Civil Aeronautics Act. The expeditious implementation of the solution is admittedly dependent in substantial part upon the strong support of the local carriers themselves and upon intelligent, affirmative action by the Civil Aeronautics Board. In view of the important goal to be attained—substantial reduction of the Federal subsidy bill and continued further development of the public services rendered by our local airlines—the necessary cooperative efforts of both the local airlines and the Civil Aeronautics Board should be assured.

(*See next page for Appendix I*)

APPENDIX I

Local Service Carrier Operating Results — 1947-1955

Total Figures	*1947*	*1948*	*1949*	*1950*	*1951*	*1952*	*1953*	*1954*	*1955*
Mail Revenues (000)	$7,137	$11,629	$13,932	$17,273	$18,843	$21,524	$24,407	$24,652	$24,817
Nonmail Revenues (000)	2,492	5,010	7,917	11,189	17,951	20,561	24,164	29,581	35,337
Operating Expenses (000)	9,017	15,577	21,873	27,088	35,993	42,741	50,049	53,221	56,845
Revenue Ton-Miles (000)	4,834	9,278	14,235	20,565	31,219	35,466	40,498	47,256	53,695
Available Seat-Miles (000,000)	156	324	478	599	775	906	1,019	1,070	1,184
Unit Figures									
Mail Pay per Revenue Ton-Mile	150c	127c	99c	87c	62c	61c	61c	52c	46c
Mail Pay per Available Seat-Mile	4.59c	3.59c	2.92c	2.88c	2.43c	2.38c	2.40c	2.30c	2.10c
Mail Pay as Percent of Total Revenues	74%	70%	64%	61%	51%	49%	50%	45%	41%
Operating Expense per Available Seat-Mile	5.80c	4.81c	4.58c	4.52c	4.64c	4.72c	4.91c	4.98c	4.80c
Nonmail Revenues per Available Seat-Mile	1.60c	1.55c	1.66c	1.87c	2.32c	2.27c	2.37c	2.77c	2.99c
Revenue Passenger Load Factor	29.9%	27.1%	28.2%	31.5%	37.4%	37.5%	38.4%	42.0%	45.2%

Source: Form 41 Reports of Air Carriers filed with C.A.B.

IMPLICATIONS OF THE ADOPTION OF COMMERCIAL JET AIRCRAFT

INTRODUCTION

By John H. Frederick

Professor of Transportation, University of Maryland

DURING the Spring Semester of 1956, the Seminar in Air Transportation under my direction in the School of Business and Public Administration at the University of Maryland, as is our custom, devoted its attention to an outstanding aspect of the commercial airline industry. The topic selected by the members of the Seminar, perhaps naturally considering the current interest in the subject, was concerned with the possible impact on the airlines of this country of the jet aircraft soon to be in operation.

Each of the following six articles was written by members of the Seminar with only slight direction by me. They are so outstanding in their approach to this important problem, representing as they do the thinking of people not connected with either airlines or aircraft manufacturing, that I asked that they be considered for publication in the *Journal*. They discuss problems which have already arisen and also some sure to arise, from the standpoint of those who will have to deal with such problems or at least be affected by the results if they are not dealt with properly.

AIRWAY TRAFFIC CONTROL

By William J. Welsh and Max M. Rule

WITH the advent of the jet age just around the corner, one of the major problems facing our Civil Aeronautics Administration is that of "air traffic control," or, in other words, what to do about our vanishing air space. The steadily increasing density of air traffic is gradually approaching the critical stage inasmuch is its rapid growth has far outstripped the pace of technical and political progress in the development of new and improved methods of traffic control. The jet, with its inherent characteristics of speed and high altitude efficiency, will so greatly complicate the problem that swift action must be taken to prepare ourselves for this eventuality.

Unfortunately, valuable time has already been lost because of a dispute about the system or systems to be used within the government and industry and between civil and military interests. This dispute

has finally culminated in a series of events designed to find a solution to the problem before the jet age arrives. These events were:

1. The findings of a study group and their report to Budget Director Rowland R. Hughes. This group, the Aviation Facilities Study Group, found decided evidence that the nation is following a piecemeal rather than a "systems" approach in attempting to meet aviation's needs for proper facilities such as airports, navigational aids, traffic control devices and the communications systems that link them together.

2. A decision by President Eisenhower, based upon the Aviation Facilities Study Group's findings, to implement a study of the long-range aviation requirements.

3. A closer working relationship between the Civil Aeronautics Administration and the Department of Defense.

4. The development by CCA of a five-year, $1,000,000,000 Federal Airways Plan.

5. The approval by the Air Coordinating Committee of the CAA's plan and a budget request to Congress for the first year's appropriation.

These events have set the wheels in motion to prepare for the traffic increase expected between fiscal years 1957 through 1961. Plans call for a greatly extended and improved system of navigational aids defining a greater number of channels of flight, improved traffic control facilities and equipment, and faster communications.

The majority of the CAA's budget for the new airway plan will go toward:

Omniranges/DME—Very high frequency omnirange and distance measuring equipment will continue to provide navigational guidance for short distances. Continued use of VOR/DME will require an additional 383 facilities thru Fiscal Year 1961. These facilities, set in the proper pattern, will furnish speedy guidance to fast flying jet aircraft.

Long Range Radar—This type will be utilized to provide adequate and rapid separation between aircraft in the enroute area rather than in terminal areas. It is planned, in the interest of economy, to use the military's air defense radar as an adjunct to the civil air traffic control system.

Secondary Radar—A secondary radar system consisting of the air traffic control radar beacon system is proposed in addition to surveillance and long range radars for a total of 134 ground air traffic control interrogator installations.

Airport Surveillance Radar—Locations will be increased from 44 to 99. The military radar approach control (RAPCON) facilities operated by CAA will be continued as a part of the common system.

ATC Tower Services—Airport traffic control service will be discontinued at locations serving less than 18,000 total annual itinerant and air carrier operations. However, an additional 40 locations are planned.

Other expenditures will include Long Range Navigational Aids and the High Altitude Control of Air-Space both of which are designed to

cope with the turbojet problem. Remaining funds will go toward the expansion of approach lighting, airport surface detection equipment, air traffic control coordinating equipment, direct pilot-center communications, and precision approach radar.

It is hoped that the plan will ultimately culminate in a "common civil military system" fully automatic in operation and providing:

1. Private line communications
2. An identification system
3. Enroute navigation and control
4. A system for transition from the airways
5. A precision approach and landing system
6. Airport control after landing.

Although these recent developments indicate our government's willingness and ability to prepare for the introduction of the jet, there are many new and, as yet, unexplored areas which must be examined in detail in consideration of the basic differences between jet and conventional aircraft.

These differences were recently defined in the CAA's published list of one hundred questions which remain to be answered in connection with turbojet operations. In the field of air traffic control, some of the more important aspects are:

1. The problem of handling mixed jet and conventional air traffic. The turbojet with speeds of 600 miles per hour, flying at 40,000 feet will require fast and accurate enroute navigational data and will require airport control instructions while still far out from the airport. A jet which is 300 miles from an airport is, in time, only thirty minutes away. CAA's plan for increased control methods will, of course, assist materially in handling this problem.

2. The problem of priorities in take-off and landing because of the jet engine fuel characteristics. Since the jet engine burns tremendous quantities of fuel at low altitudes, it is contended that once an approach is made, the aircraft must land because the remaining fuel will be insufficient for holding or proceeding to an alternate destination. Similarly, once the engines are started for flight, there must be no delay in take-off. Unless future technical developments present an answer to this problem, it seems apparent that priorities must be established for turbojet aircraft.

3. The effects of high speed and high altitude on navigational aids and communication reception. The use of visual signals are, of course, impossible at high altitudes. Navigational aids, on the other hand should be much improved because of the increased range. Reception should be better than at lower altitudes.

4. The effects of "overlap" of VHF signals at high altitude. Unfortunately, the higher our planes fly today, the greater is their increase in range for VHF signal reception. This means that a plane flying at 40,000 feet over Philadelphia, for instance, may be within signal range of New York, Baltimore and Washington, and may be receiving signals

from all four areas simultaneously. This resulting "overlap" is very undesirable from a safety standpoint. Further technological developments will be necessary to overcome the problem.

5. The effect of jet aircraft on enroute separation because of their high cruise speed. The present enroute separation or distance between aircraft flying at the same altitude is standardized at a ten minute minimum. This means, literally, that planes may take-off every ten minutes bound for the same destination and flying at the same altitude. The introduction of jet transport into this pattern throws the whole system into chaos. The jet with its increased speed will overtake conventional aircraft with a much increased chance for mid-air collision.

6. The effects of mixing high speed military aircraft with civil jets at high altitudes. The danger here, of course, is also mid-air collision. However, military and civil aircraft have been operating together at low altitudes for years and there should be no good reason why this mutual arrangement cannot be continued at greater elevations.

7. Requirement for airborne identification equipment because of the high closure rate. This again is the problem of mid-air collision which is made even more critical by the increased speed of the aircraft. Reliance on visual recognition is out of the question and hence there must be some form of fairly long range identification such as built-in airborne radar.

8. Operational procedures and equipment required in the event of sudden loss of pressurization at high altitude. If the internal air pressure in a jet mainliner traveling at 40,000 feet should suddenly escape, it is highly probable that all passengers would perish before the craft could descend to a safe altitude. This possibility may necessitate emergency equipment and standing operational procedures on all jet aircraft.

Other problems in the same vein but, of perhaps less importance, under consideration by CAA are:

1. Effects of high speed and therefore, high "G" effect on passengers and crew
2. High altitude effect on passengers
3. Effect of high altitude turbulence on passengers.

These, then, are the main problems of air traffic control which are yet to be solved before the grand entrance of the commercial jet era. Undoubtedly, many of them have already been solved by the Air Force in the military operation of jets, and it is hoped, in the interest of economy, that much information will be made available for commercial use. Its applicability, of course, depends upon cost, since cost is the controlling factor in commercial operation. In any event, the government is fully cognizant of the problems which exist, and the airlines are indeed fortunate to have this tremendous burden assumed in their behalf, free of cost, and with very few strings attached.

AIRLINE FINANCING AND OPERATIONAL PROBLEMS

By Franklin W. Donahue and Benjamin E. Perry

PRIOR to what has been referred to as the current "equipment buying binge" of the certificated carriers, airline financing for new equipment was usually accomplished with five-year bank loans to be repaid from earnings and primarily through rapid book depreciation of the new equipment long before its serviceable life span was completed. Aircraft, of course, are used long beyond this depreciation write off period and subsequently change hands quite a few times before becoming unserviceable. The book value of airline aircraft, because of this method of depreciation, is considerably understated. While this is the past picture it now appears that there will be a considerable number of changes. Most of the airlines, it would appear, are embarking on quite a gamble; backed up of course by the progressive thinkers in the air industry who are always credited with the utmost optimism.

The financing for the new jet aircraft, and other new aircraft acquisitions, is entirely different. Long term debt was unheard of in the past but now the airlines are initiating 20 and 25-year loans, payment on many loans not to start until 10 years hence. Instead of borrowing from a few of the larger banks the airlines are resorting to life insurance companies such as Metropolitan, Prudential and Equitable.

The practice of depreciating the aircraft over a seven-year period or less, with the new jets costing upwards of $5,000,000 each seems all but impossible, plus the fact that the airlines are buying large quantities of these planes not just a few. Orders for new aircraft per company average over $270,000,000 for three of the "Big Four." A firm order for new equipment involves advance deposits and progress payments as much as four or five years before delivery. The advance outlay may amount to as much as 35% or more of the purchase price. Taking the industry as a whole it is believed that over $1,000,000,000 of financing will be needed.

Last year the airlines total revenue was $1,600,000,000 or about $400,000,000 less than commitments for projected new equipment. With the bulk of the new planes scheduled to be delivered in 1960, the carriers have scheduled capital expenditures of about $500,000,000 a year for the next five years or approximately 30 per cent of current revenue.

As of 30 June 1955, the entire assets of the United States air transportation industry, domestic, international, territorial and cargo was $1,300,000,000 (⅓ long term debt, ⅔ actual net worth). Not a very rosy pitcure when the airlines are taking on over $2,000,000,000 more in long term debt. Some question the advisability of such a situation

asking "if the traffic potential doesn't generate and earnings aren't as expected who is going to bail the airlines out?" So far the Civil Aeronautics Board has never let a major airline go into bankruptcy and perhaps some of the airlines are relying on the continuance of such a policy as they assume these tremendous obligations. Again perhaps some "behind the scenes" government negotiations have already gone on to strengthen the position of the airlines in their buying spree.

The advantages of a strong commercial air transport system in being is an immeasurable asset to our foreign policy and national defense. The addition of these jets to our present fleet of aircraft will certainly enhance our position at the diplomatic conference tables.

Some of the optimism being demonstrated is warranted, and it is a great tribute to the industry's effort to continue upward. In the last nine years the domestic airlines have increased their passenger miles flown from 6,000,000,000 to 20,000,000,000. Each of the Big Four are larger today than the entire industry was in 1946. Earnings last year were 55 per cent greater than 1954 earnings. The airlines are overtaking the buses and railroads in passenger traffic. Airline traffic amounted to 33 per cent of that generated by all modes in intercity travel exclusive of the private automobile. It is predicted that by 1960 the airlines will have a greater traffic volume than either rail or bus. That does not necessarily mean that all the increase will be taken away from rail and bus but that new sources of traffic will be uncovered. A very strong potential for this undeveloped traffic is the 2,500,000 United States tourists expected to be traveling to Europe annually by 1960. Whether or not new traffic will be sufficient to gain the 100 per cent increase in passenger load for the jet era remains to be seen. Without a doubt a terrific selling campaign will have to be waged.

Operational and Organization Problems

The next big question is; what effect will all the ramifications of the jet age have on the airlines themselves? Probably no major reorganization of the airlines will be necessary, however, considerable expansion of existing departments can be expected with changing emphasis on certain aspects of the overall company operation.

First—The sales force, advertising and public relations are going to bear a major brunt of the promotional activities of the oncoming jet age.

Second—Preliminary studies, under the guise of research and development, will have to be made in which the known characteristics of the new planes will be applied to regularly scheduled operations. United Air Lines has been conducting such a study entitled "Paper Jet" since some time in 1954. This exercise has provided this company with basic information on, cost of operation, maintenance requirements, and flight times. Unfortunately, or fortunately for United, this information is a closely guarded company secret and not available to

the public primarily for competitive reasons. It is assumed that United Airlines used this study as a means of determining which aircraft to purchase so that they did not wind up in the position of having a "second best" airplane.

Third—Based on such studies the operations and maintenance departments can be effectively reorganized and undoubtedly expanded; at least in the initial period. The reason the term expansion is used here is due to the expected use of both piston type aircraft and jet aircraft together for a considerable transition period, if not continually. This of course would mean that a specialized segment would be added to both operations and maintenance.

Fourth—Safety will become increasingly important and with the greater ramifications of this problem, i.e., seat belts, oxygen, emergencies at high altitudes, pressurization problems, etc., it is believed that a separate section of airline operations must be established or expanded greatly for cooperation with manufacturers and the Civil Aeronautics Administration in accomplishing this feat of maximum safety at 600 miles per hour for airline passengers.

The large numbers of people likely to be involved in any one accident, the much greater quantities of fuel carried, the higher speeds and greater energies of a jet plane make it absoultely necessary that every facet of operation both air and ground be carefully examined to eliminate safety hazards.

There are many reasons to anticipate an even higher standard of safety for the jet transport than is now employed with current equipment. Proof of that will be lacking, however, until the new jet transports have seen extended service.

The substitution of a less volatile fuel than gasoline probably represents the greatest single safety improvement. However, this fuel is not entirely safe and requires different ground handling and precautions. New criteria will be established and will hold true for other aspects of ground handling. Ground checks and inspections must be geared to a new set of rules. For instance, improper starting and ground operation of turbine engines can easily result in more serious engine damage than with reciprocating engines. The ingestion of foreign objects into the engines can be a major source of trouble and the cause of serious ground accidents involving larger numbers of people than ever before. In order to prevent such accidents the airlines will have to exercise the most effective control possible over mechanical practices and shop, runway and ramp housekeeping.

The much greater quantities of fuel aboard these planes, greater energies tied up in the jet airplane, make it absolutely necessary that every facet of ground operation be carefully examined to eliminate hazards.

Fifth—How are the pilots going to take to the jet era? Historically speaking, pilots have sought increased compensations as technological

advancements in aircraft have increased their productive capacity. Will they want more money to do this job or will they be satisfied with more time off? It would appear that the airlines will reach the impasse that the railroads have, i.e., they will pay a pilot for an eight-hour day even if it only takes him two hours to do the job. While time in flight will be relatively shorter the jet pilot will be under a much greater physical and mental strain due to critically narrow flight plan tolerances, greater speeds and higher altitudes. Aero medicine should reevaluate current physical requirements for transport pilots in the light of this additional strain. Any developments that may shorten a pilot's productive years would have a serious impact on present employment agreements.

Sixth—Ground time saving appears to be more important to the larger jet transports than to the present conventional aircraft. Since the airplane is an economic tool only during the time it is actually in flight and since its potential economic value is based upon its ability to produce a great number of ton miles and/or passenger miles per unit of time, it logically follows that ground time saving becomes more important as the size and speed of the airplane increases. The jet transport represents marked increases in both these dimensions. Ground time therefore must be reduced to a minimum. One major airline has calculated one minute of wasted time of a jet airliner to represent nine flight miles. A few minutes delay then represents a major setback in flight distance.

To further cut down ground time the handling of passengers and cargo must be accelerated. The airlines must analyze current methods and realize that more rapid and effective loading and unloading of passengers and cargo must take place with the jet aircraft. Some form of docking equipment seems to be indicated if design flexibility to handle various aircraft is to be accomplished. The use of preloaded containers for cargo and baggage will certainly save time and prevent damage.

The acceleration of passenger loading is quite a problem in itself, because, for one thing the airlines can't make the passengers run. It appears that two door loading will be mandatory and accurate and quick routing of passengers through the entrance gate and to those loading doors must be accomplished.

The problem of protecting the passengers from the elements is a real one. The umbrella brigade is a thing of the past so far as the jets are concerned and more efficient ways must be devised to move passengers to planes during inclement weather. Some underground system rather than the awning method would appear to be the best solution.

Seventh—Scheduling the new jets appears as still another problem. There appears to be great optimism in this area. It is anticipated that the jet will be superior to either the DC-6 or DC-7 in this respect. Utilization is a major factor in scheduling the jets. Current aircraft are scheduled on the basis of seven to nine hours flying time per 24-

hour day. Unfavorable arrival times and elapsed flight time has much to do with this low utilization. This problem will be reduced by a considerable margin with the jets and it is expected that the utilization hours will be better with the jets providing that turn around times are accelerated also.

Consistency of on time departures and arrivals should attain a new high in jet transport operations. This is with particular regard to the effect of winds. Headwinds apparently have significantly less effect on high speed aircraft. The greater potential for higher speed aircraft to produce on time performance will make for greater precision of operation. Aircraft disposition for schedule backup purposes can be planned more strictly in regard to maintenance and servicing requirements. Therefore mechanical reliability of the jets and effective servicing will be of greater relative importance in attaining high utilization than in the current aircraft.

The problems of scheduling airline services at frequencies that best meet the public desire and are still consistent with airline earnings are difficult. The jet transport apparently will not change this. A balance will still have to be struck between schedule frequency, length of trip (in miles and time) size and number of airplanes the airline is financially able to apply to the operation. A complete running statistical analysis of patronage will be the key measure of how successful a balance is attained.

Eighth—As can be seen from the foregoing, maintenance of the new jets is going to be all important. Whether or not the airlines perform that maintenance themselves or contract for it will depend a lot on the size and capital of the respective airlines. It is believed that the larger airlines, American, Eastern, United and Trans-World will perform their own maintenance. Some of the smaller airlines may also do the same. This means an initial outlay of greater than $3,000,000 for the basic tools to accomplish this maintenance. For the most part the tooling for present aircraft maintenance in no way resembles what is required for the jets. In addition the training of personnel for this new maintenance job requires from twelve to eighteen months of on the job training. This is true whether the individual is a new man or one making the transition from conventional aircraft to jets. The additional noise created by these maintenance units creates still another problem within the airport community area and only expensive noise suppression devices can eliminate the greater portion of this problem.

AIRPORT PLANNING AND MANAGEMENT

By Charles S. Fraleigh, Jr., and Grace M. Goddard

The effect of jet operations on airport planning and management is of no less importance than that of plane and equipment development, traffic control, passenger requirements aloft, etc. In fact, a long, hard look must be taken without further delay at the adequacy of airports and their facilities. Airports as presently constituted are important limiting factors in the widespread use of jet planes, especially of the larger craft for transcontinental and overseas flights.

An appraisal must be made of the adequacy of the airports most likely to receive the large jets initially. This is the most pressing problem, but, concurrently with this, planning must proceed for other cities likely to receive such service shortly thereafter. Moreover, airports likely to handle only the smaller jets require survey. In connection with adequacy, major problem areas apparently are as follows: (1) length, width, and strength of runways, taxiways, aprons, etc. (2) longer, unobstructed approaches for landings and takeoff (3) passenger and baggage handling facilities and procedures (4) noise as its affects nearby residents, airport employees and waiting passengers (5) fuel servicing and handling, and (6) servicing and maintenance problems. These and lesser problems are related to presently existing airports, but there is also the necessity of proper location and design of future airports, dictated in large part by jet plane demands.

Airport adequacy will be discussed as it applies to both the large and small jets, though greater stress will be placed on the larger planes and their requirements.

Adequacy of Present Airports

One might, at this point, logically ask what airports will be affected and to what extent. The answer to this problem is not available at this time though there has been much conjecture on the part of writers, aircraft manufacturers' representatives, airline spokesmen and many others. In May, 1956 the CAA made public its intention to fly an Air Force B-47 jet bomber into selected civil airports to determine their capability to handle commercial jets with comparable landing and take-off characteristics. A tentative airport selection criteria is based on the volume of traffic handled.[1] To be included, on this basis, will probably be the ten largest traffic generating cities,[2] which are shown in the first group below. The second group of cities listed also should be included because of traffic volume as well as the nature of flights. The latter would include both international as well as long-haul domestic flights.

---

[1] Obtained from Aviation Information Branch, CAA.
[2] As of July 1955.

First Group

City	Runway Length	Altitude	Gross Loading Weight* Single Wheel	Dual Wheel
New York (La Guardia)	5,900′	20′	100	135
New York (International)	9,500′	12′	200	260
Chicago (Midway)	6,400′	618′	120	160
Chicago (O'Hare)	7,300′	657′	120	160
Los Angeles (International)	8,600′	125′	200	260
Washington, D. C. (National)	6,700′	16′	120	160
San Francisco (Municipal)	8,900′	11′	200	260
Miami (International)	9,400′	9′	150	200
Detroit (Wayne-Major)	7,900′	639′	200	260
Atlanta (Municipal)	7,800′	1,024′	120	160
Boston (Logan)	10,000′	19′	200	260
Dallas (Love)	7,700′	485′	100	135

*Weights given in pounds. Add three zeros to figures listed.

Second Group

City	Runway Length	Altitude	Gross Loading Weight* Single Wheel	Dual Wheel
Denver (Stapleton)	10,000′**	5,331′	120	160
Kansas City, Mo. (Municipal)	7,000′	758′	150	200
Cleveland (Municipal)	6,400′	789′	200	260
Minneapolis-St. Paul (Intnl.)	6,500′	840′	120	160
New Orleans (Moisant Intnl.)	7,000′	3′	120	160
Philadelphia (International)	7,300′	10′	120	160
Pittsburgh (International)	7,500′	1,168′	120	160
St. Louis, Mo. (Lambert)	10,000′	558′	200	260
Seattle-Tacoma (Intnl.)	8,500′	424′	120	160
Seattle-Tacoma (Boeing)	10,000′	17′	120	160

*Weights given in pounds. Add three zeros to figures listed.
**Adjusted or effective length is 6,500 feet.

The data shown above do not present an accurate measure of use-capability of runway lengths. These figures must be adjusted downward to compensate for altitude and weather. CAA's present standard calls for increasing the length seven percent for each 1,000 feet of elevation, a standard which probably will continue to be valid. Currently, the length is increased by one half of one percent for each degree that the mean temperature of the hottest month of the year exceeds 59. This factor may also continue to be valid, but must be established precisely. What does this mean? It means, for example, that the effective length of the runway at Denver is 6,500 feet, New York's Idlewild is 8,724, Chicago's O'Hare is 6,838, Boston's 9,185, Los Angeles' 7,317, and at San Francisco the adjustment is relatively minor—8,612 feet.

Before discussing the handling of large jets, it is best to dispense with the smaller ones as there would appear to be no pressing problem.

The Convair "Skylark 600," which is probably typical of the smaller planes, is being designed to operate from 5,000 foot runways with a maximum gross take-off weight of 170,000 pounds and a typical take-off weight of 150,000 pounds. With critical characteristics such as these, all the cities listed above would have airports with adequate runway lengths and only two would be deficient in weight (Dallas and New York's La Guardia). Many other cities also would be able to handle this type plane with little or no modification to runway lengths and strengths. One estimate has placed the figure of entirely adequate airports at more than one hundred.[3]

In discussing airport capability to handle the larger jets, we will again use planes typical of the class. In this case, Douglas' domestic and intercontinental versions will be considered. Either one or both in some cases will in all likelihood operate to and from the cities listed in the two groups above.

Intercontinental flights with the maximum useable take-off weight would require runways to be 9,000 feet or more in length and capable of handling 287,500 pounds. Only New York's International and Boston's Logan have the necessary runway length and possibly the strength, the latter depending upon the actual take-off weight. Miami should have the length though its weight deficiency is too great for the runway to hold up under sustained use.

The domestic versions of the Douglas plane have a maximum usable take-off weight of 250,000 and 265,000 pounds, respectively. Runway length for the former is 9,440 feet, and 8,640 for the latter. These lengths are comparable to those required for the intercontinental versions. But reductions are possible by decreasing load and range, an uneconomical operation for a plane designed for the heavier load and longer range. It is estimated that with a range of 1,830 miles, a runway length of 6,500 feet would be needed. If this estimate is proved to be accurate, only five of the cities listed above would appear to be adversely affected. As regards the weight factor, only the cities listed at 260,000 pounds would be free of the danger of runway damage due to excessive weight.

An alternate solution to the expensive lengthening and strengthening of runways, is a challenge to the aircraft industry. Planes must, if feasible from the standpoint of engineering and of economics of operations, be so designed that present airports do not become completely obsolete. A solution to the take-off problem may be found in the use of after-burners on the jet engines which would permit quicker, more steep ascent. Also, highly desirable is "reverse thrust" to slow the plane after touching down on the runway. Successful application of these two items should have a tremendous effect on runway length requirements.

Other considerations related to runway, taxiway, and approach capability are no less important than the factors just discussed, though solving of some of them may be more readily accomplished than others.

[3] Made by J. G. Zevely, Convair Director of Sales and Contracts.

The first of these is the width of runways, taxiways and, in some cases, aprons. "Runway widths must be adequate to handle the maximum cross-wind conditions, and allow for reasonable precision take-off and, particularly, landing guidance errors."[4] In this connection, the Civil Aeronautics Administrator in a speech at the Air Force Association Jet Age Conference, which was held at Washington, D. C., February 4, 1956, stated, "many people will be pleasantly surprised to learn, we find it possible to consider very seriously a proposal . . . that the standard (runway width) be reduced to 150 feet (that is, from 200 feet, on the two largest categories of airports)." He further stated that, "The jet transports . . . have wing span not significantly larger than today's aircraft, and we may be able to offset some of the cost of additional runway length by reducing the width." Runway width on major airports does not appear to be a problem.

The problem of taxiways will need some consideration. The British, in their experience with the Comet, found that high-speed taxiing was a necessity as fuel consumption was too rapid in this phase. Some taxiing will be required even though planes may be loaded some distance from the terminal. This presents the need for taxiways curved so that the plane need not decelerate. Taxiways designed in this manner would also permit the jet plane to gain some if its take-off speed prior to getting on the runway (this would require a change in clearance procedures). It should be noted in this connection that an Air Force F-84 requires a runway two and one half times as long as does the piston-engine F-51 to allow it to gather necessary power as it gathers speed.[5]

In addition to the curvature aspects, the British found a definite need for holding areas where bypassing of piston-engine planes could be accomplished. Certainly, this aspect will be important in many of our major terminals where traffic is heavy.

Finally, the weight which the taxiway can support is likewise a problem just as it is on the runway and deficiencies will have to be corrected.

Apron deficiencies may not exist due to the desirability of loading and unloading passengers at points remote from the terminal area. Such loading appears necessary due to noise, and the heat and blast effect of jet engines.

The approaches to runways present an area of uncertainty. "High-speed planes will follow more shallow paths on approaching and leaving airports, and will have larger radius of turn."[6] "This emphasizes the necessity for 'planning of larger, clear and unobstructed zoned areas beyond the ends of the runways.' "[7] The B-47 jet experiment

[4] William Littlewood, "Air Transport and the Jet Age" in the National Defense Transportation Journal, March-April 1956, p. 62.

[5] Walter A. Kilrain, "Jets Pose Airport Design Problems," American Aviation, May 25, 1953, p. 37.

[6] "Airport and Airway Changes Urged," American Aviation, July 7, 1952, p. 22.

[7] *Ibid.*, p. 22.

should prove or disprove this thesis. Zoning changes and removal of some present obstructions could easily be required.

The effect of jet plane operation on airport pavement is an important consideration. This problem is concerned with the effects of blast, heat and jet fuel spillage. Jet fuel, although it has a petroleum base, evaporates far more slowly than aviation gasoline, and consequently has more time to harm the pavement. An International Civil Aviation Organization news release of December 3, 1952, had the following to say in this regard:

> "The United States delegate reported that experiments carried out in his country showed that very difficult and serious pavement problems may be created by jet aircraft, particularly by those whose engines are mounted close to the ground (e.g. hung in pods below the wing). Certain of these tests resulted in temperatures as high as 400-500°F (200-260°C) at the surface of the ground. If assisted takeoff, using rockets, afterburners, or some other means of augmented thrust, becomes necessary for commercial jet-liners, the problem will become more difficult still; core temperatures of assisted takeoff devices run from 3500 to 5200°F with speed of exhaust gases between 6000 and 8000 feet per second; temperatures 2½ feet below the core and 25 feet away are about 700°F (370°C).
>
> "Fuel may spill from jet engines during starting, stopping and acceleration; the petroleum compound has a softening effect on certain types of non-rigid pavements, but its effect depends, for one thing, on the surface of this pavement; pavements made of well-compacted, densely-graded materials are not so much affected because the fuel does not penetrate so deeply; even here, however, the softened surface is then more sensitive to the eroding effects of heat and blast from the gases emitted by the engines. Concrete itself is not affected by spillage . . . "

Major General R. M. Ramey, United States Air Force, in testifying before a House Armed Services Subcommittee in 1954 stated, in effect, that "jet experience was dotted with stories of asphaltic pavements disintegrated by spilled fuel, of jet engines ruined by sucking up loose stones, and by accidents caused by runway ruts."[8] Out of this experience supposedly has come a strong preference for Portland cement among air base commanders and constructors.

Along with the foregoing is the necessity for keeping runways, ramps, run-up areas, etc., free of engine-damaging debris. Acquisition of motorized sweeping devices in sufficient numbers would be the answer.

The Noise Aspect

The aspect of jet noise and its attendant problems may be divided into two areas for consideration. The first concerns its effect on residents in the immediate vicinity of the airport, and the latter, on airport employees, passengers and others.

At present there is both optimism and pessimism concerning the

[8] "Asphalt and the Jet Air Base," Business Week, February 27, 1954.

possibility of reducing jet noise to tolerable levels. The crux of the problem is to reduce noise without reducing power. Unless some startling innovation occurs in the near future, it will be necessary to educate the public to this additional noise. Experiments by Boeing have been successful in cutting noise to levels of present-day piston engines.[9] This must, however, prove feasible economically and operationally to be acceptable.

In addition to educating the public to jet noise, other means are available to lessen the objection of nearby residents. In some instances the landing and take-off pattern can be safety altered to fly over less congested areas; and certainly in the location of any new airport, this factor must be given due consideration. The fact that a jet airliner will be overhead a shorter time is a factor in its favor.

The second area mentioned—effect on employees and passengers—should not present insurmountable obstacles. By handling loading and unloading operations away from the terminal area and construction of a sound deflection wall between that point and the terminal, the effect of noise should be materially lessened. If, on the other hand, it is desirable to bring the plane to the apron, this may be done by towing. Boeing has designed a suitable towmotor[10] but the economics of such a system are not favorable. Labor costs, especially at busy airports, would be tremendous. Bringing the plane to the apron under it own power appears to be unacceptable, not only from the noise standpoint but also that of safety. The latter concerns accidents which might be caused to individuals as a result of the jet engine stream.

Noise in maintenance shops and on the run up line would be annoying to both workers and to nearby residents. The need here is for inexpensive, portable mufflers. Both mufflers and semi-portable suppressors are devices that cut down noise levels during ground operations. In this sense, they are like the jet engine test cell and simple blast wall that do not reduce the noise but deflect its intensity from neighbors.[11] The Air Force is developing such devices and their adoption in commercial operations appears highly desirable.

Terminal Considerations

Terminal passenger and baggage handling facilities will require modification, though not all of this will be as a result of jet operations. Some of it is properly attributable to the normal long-range increase in air transportation of both passengers and cargo.

From the standpoint of the passenger, the present cumbersome, time-consuming method of ticketing must undergo revision. With large plane loads of passengers piling up to a ticket window just prior to de-

[9] "What's Happening in Transportation," A news digest published by The Transportation Association of America, February 21, 1956.

[10] "USAF Develops New Jet Muffler," Aviation Week, November 29, 1954, p. 18.

[11] "Future's Planes versus Today's Fields," Aviation Week, May 8, 1950, p. 42.

parture, a "pony express" method of handling is not adequate. Modern mechanical methods of ticketing must be given priority in the planning of this activity. Louis R. Inwood, Philadelphia aviation director, says he doubts that there is an airport in the U. S. that can properly handle ticketing of passengers for 80-passenger planes, much less 150 or 160.[12]

Of no less importance is the need for baggage handling. Handcart methods must give way to efficient mechanical means or passengers will become even more exasperated than they now are with the time delay and lack of efficiency. A suitable system would seem best predicated on the use of a full or at least partial conveyor belt system from plane side to baggage room.

Other terminal facilities such as restaurants, rest rooms, and the like, may require modification so as to reduce the annoyance of noise and to handle increased traffic. The New York Port Authority recently announced that the new Knott Hotels Corporation's International Hotel at Idlewild will incorporate new features designed to isolate the sound of jet airliners.[13] One item will be the utilization of double-glazed windows. This idea may have to be transferred to other buildings, including the terminal itself.

Fuel and Its Handling

In any analysis of jet fuel requirements and handling procedures, one factor is foremost—standardization. Jet engine fuel must be standardized, preferably on a single grade and type but not more than two. When one considers the tremendous quantities involved — 6,000 to 18,000 gallons for a single flight, depending on length — additional storage and fueling facilities become a necessity. And this requirement is to be superimposed on the continued need for storage and handling facilities for other types of fuel. "It is obvious that with such quantities involved, the type of fuel must be standardized for it would be a staggering job to provide storage capacity for several types."[14] Mr. C. J. Lowen, Civil Aeronautics Administrator is credited with the statement that, "Our conference was told that standardization studies have been going on for a year and a half."

Even assuming, then, that standardization will be accomplished, the necessity for adequate storage capacity and high-speed, under-wing fueling is clear. First, as regards the problem of storage, there appears to be no other way than construction of underground facilities capable of handling the added fuel required and having such facilities connected with high-speed fueling outlets, at least four in number for the large jets, and as required for the smaller ones. However, it would seem highly desirable to standardize the number of fueling points and their

[12] Sunday Star Newspaper, Washington, D. C., May 6, 1956.

[13] L. C. Philmus, "Airports Face Financial and Facilities Bottlenecks in Commerical Jet Age," American Aviation, January 30, 1956, p. 65.

[14] Statement by C. J. Lowen, Civil Aeronautics Administrator, at the Jet Age Conference of the Air Force Association, Washington, D. C., February 4, 1956.

locations on the different planes so that the fueling installation could be designed accordingly. The factor of location of this installation then becomes very important. The location must be related to the loading and unloading point for passengers, a subject which has been previously discussed.

Another phase of refueling is that involving the use of distilled water for take-offs. Large jets require 600 gallons in hot weather.[15] Facilities for handling this item must also be made available at the "refueling point."

Servicing and Maintenance Problems

Servicing and maintenance aspects must be taken into account by the airlines without delay so that they will be fully prepared when the jets start to fly. This phase of operations is of no less importance than any other as a major change in equipment such as this brings with it new servicing and maintenance requirements. The airlines will require new equipment, and must also retrain ground crews to the extent necessary to properly service and repair jet engines and other equipment peculiar to a jet.

Mr. W. A. Patterson, President of United Air Lines, pointed up this need as regards training in a recent magazine article[16] in which he stated "ground crews must be well prepared to meet entirely different requirements in a completely new field." Several airlines have recently announced ambitious training programs for such personnel. It can be safely assumed that this aspect presents no great problem and that the airlines, realizing their responsibility, are moving forward rapidly to accomplish the necessary retraining.

Airport Improvement Financing

The airport improvement financing problem at the moment has both a bright and dark side. The dark concerns the objection of local sources to providing additional monies, the bright concerns federal appropriation. The following is quoted from the remarks of Joseph D. Blatt to the CAA sponsored Jet Aircraft Meeting at Washington, D. C., January 11, 1956:

> "Representatives of local governments and the major airport providers put the airline operating industry on notice that aviation was in competition with schools, roads, sewers, water supply, etc., and that in the opinion of the experts present at the meeting aviation could not expect to get any more local support from the local taxpayer. General obligation bonds for airport improvements could no longer be approved. If the airlines demanded airport improvements to accommodate the larger jet aircraft, then the airlines would have to pay for these improvements through increased fees and charges."

---

[15] "Jet Age Ahead—Airports Lag" Article, U. S. News and World Report, January 20, 1956, p. 49.

[16] "Jet Airlines," National Defense Transportation Journal, March-April 1956, p. 41.

Expressions of opinion similar to the foregoing have been made by other authorities in the field, and several cities have experienced difficulty in have bond issues approved for expansion purposes. Some have been refused. This fact must be taken into account by airplane manufacturers and the airlines and an honest attempt made to produce planes which do not require ever larger fields from which to operate.

The other side of the picture concerns the federal government's participation for the next three fiscal years. Expenditures are projected at a rate of $63,000,000 per year This is significant when one considers that the federal government spent nothing in 1954 and only the niggardly sum of $22,000,000 in 1955. It would seem highly desirable that as much of this amount as is possible should be earmarked for jet facilities at the larger airports. In fact, it is recommended that Congress be asked to authorize a greater portion of these funds be allocated to these airports, that is, the ones with known "jet deficiencies."

AIRLINE SCHEDULING, ROUTE PATTERNS AND SALES

By Paul Shannon Cline

OPERATING characteristics of jet aircraft of the Boeing 707 and Douglas DC-8 types dictate that route segments be longer than 500 miles. Preferably, they should be as long as 750 to 1,000 miles in order to prevent the segment block speeds from being nullified by time spent at intermediate stations. Therefore it would seem that the route pattern could be quite easily planned by connecting the major traffic generating stations which are located within a range no closer than 750 to 1,000 miles of each other.

For the individual airline, only a very minor number of its stations can be classified as major traffic generating points when appraised by future standards of passenger capacity. This accounts for the fact that proposed schedules of elasped flying time between stations are given for only major points in company publicity on jet purchases. One Boeing 707 Stratoliner operating on the proposed schedule of four and one-quarter hours between Los Angeles and New York[1] will be able to transport the annual passenger loads as shown in Table I.

Assuming that American Airlines retains its daily round-trip schedule of three non-stop first-class flights and three non-stop coach flights which it was operating in December 1955,[2] and that it operates all of them with a 75 per cent load factor, it will fly 938,618,040 passenger-miles on this one route each year in the jet era. This could be accomplished with six to nine planes, depending upon the turn-around time,

[1] "Equipment Notes," *Official Airline Guide*, December 1955, p. A-15.
[2] *Ibid.*, pp. C-48, 49.

TABLE I

ANNUAL PASSENGER CAPACITY OF ONE BOEING 707-120 OR 707-220 OPERATING BETWEEN LOS ANGELES AND NEW YORK*

*First-Class (109 Passengers)**				*Tourist (125 Passengers)*			*Mixed (49 and 69 Passengers)*		
Load Factor (%)	*No. of Passengers per Flight*	*Passengers Carried*	*Passenger Miles (000)*	*No. of Passengers per Flight*	*Passengers Carried*	*Passenger Miles (000)*	*No. of Passengers per Flight*	*Passengers Carried*	*Passenger# Miles (000)*
65†	70	50,400	124.4	81	58,320	143.9	77	55,440	136.8
75	82	59,040	145.8	94	67,680	167.1	89	64,080	158.2
85	93	66,960	165.3	106	76,320	188.4	100	72,000	177.7
95	104	74,880	170.1	119	85,680	211.5	112	80,640	199.1
100	109	78,480	193.8	125	90,000	222.2	118	84,960	209.7

* Figures based on statistics from *Interavia*, Vol. XI, No. 3, 1956, p. 177 and assuming one round trip per day for 360 days per year.

† Load factor for domestic trunk airlines in 1955 was 64.06%. See: Air Transport Association, ***Facts and Figures, 1956.***

Based on official mileage record of the Civil Aeronautics Board which gives Los Angeles, New York mileage as 2,469 miles.

the departure times at each end of the route, and the number of planes held in reserve for "backing up" flights in case of mechanical, electronic, or other maintenance troubles on a plane scheduled to operate on a given flight.

In addition to the round-trip transcontinental flight discussed above, some of the planes might be utilized for night trips of shorter distances, such as New York to Chicago. This arrangement of schedules would result in effective utilization of equipment and still allow at least two hours turn-around time at the end of each flight segment. Thus, the matter of scheduling and route patterns appears to be simplified by the operational limiting characteristics of the jet aircraft.

Unless the recently announced Convair Skylark is placed in service, ten or twelve points in the United States will be recipients of all the jet service, and rightly so. Into these cities will be fed passengers from areas which today are considered good traffic generating stations on the routes of the regional carriers. In effect, our present regional carriers will become large feeder lines. From the point of view of the transcontinental air traveler, it will be to his advantage to obtain connecting reservations at the nearest airport served by jet aircraft rather than to cross the country on a series of regional carrier flights or local flights of the transcontinental carriers. Such connections should be easy to obtain since all transcontinental carriers except Northwest-Orient Airlines have already purchased jets.

Are the airlines overexpanding passenger capacity? If we can assume that the population of the United States will continue to grow at the present rate and that our standard of living will remain high, it would appear that the decisions of the airlines with regard to large orders for jets are quite sound. One particularly optimistic note for the airlines comes out of the fact that the American public since World War II "has increased its spending on airline travel at a greater average yearly rate—18 per cent annually—than it has on any other type of personal spending."[3] Referring again to the example of American Airlines, it will be seen that, with allowances for planes undergoing inspections and repairs, approximately one-third of its initial jet fleet will be utilized to provide service on one route. A close examination of the route pattern of other carriers will doubtless reveal similar situations.

The appearance of the turbo-prop aircraft on the domestic routes just one year ahead of the turbo-jet deliveries will also serve to boost seat-miles flown. Their introduction will start the trend toward a "phasing out" of the least economical models of the present piston type planes. Questions regarding the market for these outmoded planes are already arising. It is not likely that large corporations will purchase four-engine craft for business use as they have the DC-3, nor will airlines in small foreign countries have need for the range or passenger capacity that these planes provide. If sales are made to supplemental air

[3] *Air Transport Facts and Figures, 1956*, p. 4.

carriers, competition from another sector of the industry increases and seat-mile capacity remains static or in all probability increases.

The prime importance of passenger potential for the future cannot be disputed. Neither can the difficulty of predicting it. In 1955 the airline percentage of the intercity passenger-mile market by rail pullman and air combined was 75.55 per cent.[4] Assuming that the long-haul passengers travel by these two modes, and directing attention to the fact that the rate of penetration of this combined market has been increasing at a decreasing rate since 1953, we realize the magnitude of the sales problem which the industry faces. Predictions of future domestic passenger-miles for a given year vary as much as five billion miles even when the decreasing rate of growth is considered, as shown by the following:

TABLE II

ESTIMATES OF SCHEDULED AIRLINE PASSENGER MILES FOR 1960 AND 1961

Agency or Person Making Estimate	*Passenger Miles (Millions)* 1960	1961
CAA, Office of Planning, Research and Development*	29.0	n.a.
William J. Hogan, Sr. Vice Pres., American Airlines†	n.a.	34-35
Karl Larsson, Chief Sales Engr., Canadair, Ltd.#	34.1	37.6

* "Traffic Shifts to Air," *Official Airline Guide*, November 1955, p. A-14.

Anthony Vandyk, "Are Airlines Overbuying? No, Says Canadair's Sales Chief," *American Aviation*, February 27, 1956, pp. 71, 72.

† "American Air Official Forecasts Slower Rate of Air Traffic Growth," *Wall Street Journal*, February 21, 1956.

n.a. Not available.

If the conservative figure given above by the Civil Aeronautics Administration is increased by only two billion to arrive at a 1961 figure of 31.0 billion we may then arrive at an average estimate for 1961 of 34.4 billion passenger-miles. This will mean an increase during the next six years of 73.7 per cent as compared with an increase during the past six years of 195 per cent.[5] Therefore, even with the rate of penetration of the long-haul passenger potential increasing at a decreasing rate to 34.4 billion passenger-miles in 1961, the annual seat-miles available by that year could be increased from the 1955 total of 29.9 billion to 48 billion[6] and a load factor of 71.6 per cent maintained.

To reduce undesirable excess capacity some airline equipment must be sold and seat sales must be increased. The advantage of the lowest seat-mile operating costs in air transport history will become a reality only if passenger demand can be expanded. For the anticipated expan-

[4] *Ibid.*, p. 19.

[5] Passenger miles for 1955 were 19.8 billions; the 1949 figure was 6.7 billions. *Ibid.*

[6] Aircraft operated in domestic service during 1955 numbered 675. *Ibid.* Leading industry economist anonymously estimates in *American Aviation*, January 30, 1956, p. 71, that the annual seat-miles available in 1962 will be 47,942,820.

sion, improvements in procedures and equipment will be needed for dealing with incoming telephone calls; reservations; ticketing; no-shows; passenger flow in terminals and on ramps; en route passenger services; and baggage handling at counters and aboard planes.

Elaborate telephone-manning formulas being used by some of the trunklines make an attempt to balance the number of reservationists times their capacity for answering calls with the anticipated number of calls during a given period. If the estimate of calls is incorrect or if there is a sudden increase in the number of contacts per passenger (often as a result of inclement weather before flight time) the reservations agents are swamped with calls and many persons endure irritating waiting periods after being answered by the airline switchboard operator.[7] Until such time as new communications equipment solves this problem the airlines might ameliorate conditions somewhat by clever advertising as, for example:

> Frankly, we're sorry you sometimes have to wait for our reservationists to accept your requests. Research is being conducted to find a faster way of serving you. In the meantime, if it is not necessary that you make your reservations during the business hours of the day, we can usually offer you more speedy service during the evening hours and on week-ends.

Such promises must be sincere and the solution to the problem *must* be found before the jet schedules go into effect.

Confirmation of reservations in less than one second should convince the prospective air traveler that the concept of speed is not confined to the aircraft alone. Such lightning-fast service has been available to patrons of American Airlines in New York City since 1952, when the magnetronic reservisor, an electronic computer developed by the Teleregister Corporation, was placed in service. The extension of the rapid service to Buffalo in April 1956 was heralded as the "forerunner of a nation-wide airline electronic data processing system" for reservations by *Aviation Week* in its issue of March 19, 1956. Other airlines are now placing orders for electronic reservations equipment, and a nation-wide interconnection of such systems will speed service on interline reservations.

Electronic processing machines of American Airlines are now able to analyze information from a modified reservations punched card, automatically punch out a teletype tape properly addressed to stations concerned, and transmit the tape without human intervention. All pertinent information, such as the passenger's name, date of arrival at connecting stations, and space required is conveyed to the proper stations with a high degree of accuracy.[8]

---

[7] Eric Bramley, "How to Speed Up Phone Service," *American Aviation*, February 14, 1955, pp. 71, 72.

[8] Philip J. Klass, "New Airline 'Datamation' Theory to Undergo Evaluation at Buffalo," *Aviation Week*, March 19, 1956, pp. 65-71.

Electronic methods of computing fares, punching routing information, interrogating reservations systems for firm reservations will permit automatic ticketing also. For the passenger checking in with excess baggage the scale will issue a ticket showing the pounds of excess. To speed passenger and baggage check-in procedures the two processes may be divided, thereby reducing the waiting time in line for people with no baggage or with carry-on baggage.

While speaking of reservations and ticketing, mention should be made of the eternal no-show problem. All the electronic equipment yet devised is not able to forecast how many persons holding reservations on a given flight will fail to appear at flight time. Before penalties can be assessed effectively some policing methods must be developed which will prevent the following abuses:

1. The argument on the part of the ticket holder that he cancelled his reservation by phone before flight time and that the airline is in fault for not having a record of his call.

2. The use of a special telephone line for receiving cancellations only may be kept busy by indignant customers who claim to have been waiting several minutes to make a reservation or who think they deserve special attention because of their claims to fame.

Until such time as commercial airline flights assume the characteristics of commuter service, reservations remain a necessity.

AIRLINE PUBLIC RELATIONS

By Charles M. Boynton

THE airlines today are facing an era presenting one of the best examples of why public relations are necessary in this industry. An anonymous airline president explained the present situation in these terms: "We are buying airplanes that haven't been fully designed with millions of dollars we don't have and are going to operate them off airports that are too small, in an air traffic control system that is too slow, *and we must fill them with more passengers than we have ever carried before.*"[1] To the public this might not mean too much at the present time, however, in the future when the full impact of this situation is realized, our airlines may find themselves in a very precarious position—unless careful public relations groundwork has been laid. The job our airline public relations man is faced with cannot be simply termed "educating the public." In order to aid in filling the seats that will be available to more passengers than have ever been carried by our airlines before, the public relations man must concern himself with at least seven major problems. These are:

[1] "The Jet Arrives; Billion Dollar Battle . . . Turns Drawingboard Dreams into Reality," *Newsweek*, March 5, 1956, p. 74.

1. A complete indoctrination of every airline employee, including the public relations man himself. Good public relations "starts at home." Unless the airline employee is aware of the facts concerning the approaching "jet era," misinterpretations may set in. Every employee of the airline is a public relations man, when questioned about facts covering his airline. A good example of the type of information that should be supplied our airline employees in the future is a booklet prepared by the Public Relations Department of Capital Airlines, Inc. for their employees, prior to the introduction of their new turboprop airplane, the "Viscount." In this booklet are covered all of the many facts and proposed plans concerning their latest purchase. Included are the reasons for the purchase, national and international significance that may be discussed, order in which they propose to replace their aircraft, method of paying for the aircraft, terminology employed, description of the aircraft, and many other matters that should be common knowledge to the employees of the airline. The purpose of this booklet was described to the employees in the following words:

> . . . to provide you with background material so that all of us will be talking in the same vein.
>
> This is a public relations guide. It establishes a policy so that we may be assured of consistency and common sense in our over-all program as we introduce the most advanced of transport planes.
>
> During the next few months, you will receive a continuing flow of sales tools and technical information on the Viscount. This booklet will supplement that material by covering facts which most likely will crop up in your contacts with your passengers, the general public and with your friends and families.
>
> Remember, talking is selling; especially when you talk about the Viscount.[2]

Booklets such as these, plus "follow-up" materials printed in airline house organs, speeches by members of management, and continuous contact work by public relations men, can create an alert, well informed and enthusiastic airline employee that will aid considerably in selling the "jet era" to the public.

2. The noise problem is one the airline public relations man will have to cope with in the future. This is actually a problem the airlines have always found to exist in the vicinity of airports, but jet aircraft will increase the number of people affected—due to the higher pitched and more penetrating sound that they generate. The public relations man has a particularly difficult problem in this case, as he cannot actually design a noise suppressor to quell the aggravating sounds emitted by the jet aircraft. The only realistic approach our airline public relations personnel can take to this problem is to try and accustom the public to the situation and hope that our aircraft manufacturers come up with an answer. It appears to be only a matter of time

[2] "Talk About the Viscount," (Washington: Capital Airlines, Inc., no date), p. 2.

before the manufacturers solve this problem — meanwhile, however, civic groups all over the country are busy preparing cases to present in opposition to the use of their areas for jet landings, due to the rumors that have been spreading concerning the noise of the jets. This is the area of consideration our public relations man must concern himself with. Once again he must present the facts to the public, through all the media at his disposal, and continuously strive to restrain the objections to the noise problem until the suppressors are perfected. The public is unaware of the efforts being made to develop these devices and should be informed by the airlines as to such efforts. The average citizen has faith in American ingenuity, and will respond more readily to this type of approach than he would to the type that attempts to reconcile him to the fate of ear-piercing aircraft alternately interrupting his daily route. The public relations man thus has a delaying action responsibility in this area of consideration, as well as one of fact presentation. He must convince the public that it is to their benefit to delay action on the proposed protests until solutions to the problem have been submitted, analyzed, and tested.

The Air Force has found that routing planes over lightly congested areas aids the noise problem. Actually, once the planes are in the air, they will be so high up that the noise will not affect people on the earth beneath them. The problem, therefore, may be localized. Since the aircraft will be soundproofed, passengers traveling on the planes may only experience the noise while in the process of arriving at or leaving the airport.

These facts should be given careful consideration by the public before any moves to bar jet aircraft from their communities are initiated. It is up to the airlines to insure that the public carefully weighs all the facts concerning these matters. Airline public relations men will have to work closely with people from "both sides of the fence"—airline personnel and aircraft manufacturers on one side and the public on the other—and strive to bring them both together toward the accomplishment of a sound, satisfactory, solution to this problem.

3. Many of our airports are inadequate for the use of the new aircraft. Enlarging these airports is going to cost money—money the average taxpayer just doesn't want to spend. To begin with, many communities don't want the jet aircraft flying near their homes because of the noise, and when they find out that they may have to pay more in taxes to fit their airports for such aircraft, there is likely to be even more resentment engendered. Only good public relations work will be able to sell these aircraft—convincing the public that the "jet era" has arrived and that they should be included in it. This is going to involve a lot of hard work on the part of airline public relations personnel. Most of this work will have to be done on the local level and will be chiefly directed at civic leaders of the communities affected. Actual contact work with these civic leaders, in an attempt to explain the advantages of including jet transportation in their community, must

be conducted. Good public relations work can be accomplished if the public relations man (or a member of airline management) speaks before local gatherings, club meetings or similar groupings of individuals to explain the advantages of the "jet era" to the community. Open meetings with "question and answer" periods will attract the average citizen and give him an opportunity to explain his viewpoint. This type of activity will often give the public relations man a better insight to the objections he will be encountering, and supply him with material he may use in his other activities connected with promoting the new jet aircraft. The airline public relations man will have to concern himself with achieving a public interest and desire for local participation in the "jet era" or the airlines may find that they will have to pay for any additions to existing facilities.

4. The public must be convinced that the new aircraft are safe. Noise breeds fear, and many of our country's citizens have heard and seen jet planes flown by the military, and will need convincing before they utilize seemingly similar planes for travel. They also have read of the failures that the British experienced with the first venture into "pure" jet air transportation, plus some of the crashes that have occurred in our own country. Although our public has faith in the aviation industry (that has no equal throughout the history of transportation) it still has the age-old fear of something "new." The expression "I'll wait and see" might apply in this case. When the new type aircraft have proven themselves and have posted good safety records, many of the "wait and see" passengers will then board the jets. These "wait and see" customers may have a marked effect upon the number of seats filled at a time when the airlines will need more passengers than ever before in their history. The airlines of our country might well follow the example of Capital Airlines, Inc. and conduct "pre-seat selling" campaigns. Included in these campaigns will have to be assurances of the efforts that are being made to insure that the new jet aircraft are being thoroughly tested and provided with every safety consideration necessary to continuing safe operation. It is estimated that over the nation's airports there are four near-collisions every flying day. How many of these "wait and see" customers would board a "new" jet plane if they were aware of this fact, plus the condition of our air traffic control system and crowded airways? These facts, however, are becoming increasingly well-known, and by 1959 they may be common knowledge. It is up to our airline public relations man to aid in the presentation of any campaigns designed to acquaint the public with the advantages the jet aircraft will offer. It is even more important that the airline public relations man impress management with the need for campaigns directed at informing the public, as well as selling it. It is going to take a lot of good public relations work to convince the public that the new aircraft will be the safest possible.

5. A good many problems the "jet era" will present are ones resulting from the introduction of new aircraft (and conceivably new pas-

sengers) into airports already overcrowded. Ticket offices, baggage counters, and all of the other passenger facilities located in and around the terminal building will be sorely overtaxed by present standards. Consider, for example, 100 to 150 passengers (expected capacity of jet aircraft) bursting forth from a jet airliner and rushing into the terminal building, clamoring for tickets on another flight; waiting in line to use the toilets; attempting to place a phone call; or performing any of the many other activities they might be expected to perform. Add to this the passengers on other flights, or those about to board planes, and you have a situation similar to what you might expect to find on Times Square, New York City, at 12 o'clock New Year's Eve. Situations such as this will add to the tension and anxiety that will exist, due to the problems previously mentioned. The public relations man must do everything possible to acquaint the airlines and airport management with this future problem and assist them in every way possible in solving it. The public, meanwhile, will have to be convinced that everything possible is being done to alleviate this situation. Careful planning is necessary and the groundwork for it should be laid as soon as possible. Although the delivery date for the new aircraft is not due for several years, it will take a great deal of time to make arrangements for handling the increased volume of traffic (both passenger and baggage) expected. Efforts should be made as soon as possible to expedite a solution to this problem, before it becomes a reality.

6. A problem which has existed for some time, and that shows no sign of decreasing, is that of drinking while in the air. With the introduction of new aircraft traveling higher and faster than any other means of transportation known to man, this problem becomes increasingly evident. Picture the poor stewardess trying to adjust an oxygen mask on an uncooperative, inebriated passenger, for instance. With pressurized cabins, the danger of a broken window or any tampering with control devices that might be accessible is one that could spell disaster for all of the occupants of the plane. Unruly passengers might well be guilty of a great number of destructive occurrences not affecting the operation of present day planes, but that would prove disastrous in our new commercial jet aircraft. The trouble seems to stem from the belief of our airline management that drinking must be allowed, as the public demands it. If the public realized the danger that will exist if passengers are allowed to drink on jet airliners, few would set foot on these planes, or if they did, would not see fit to drink themselves. Airlines have agreed on a policy restricting liquor service aloft to a two-drink limit. Such a policy will tend to quell the tide of alcholism aboard many of our airlines. The solution could well be expedited if the public relations men of the airlines were to prove to airline management that the majority of their passengers do not favor drinking while aloft. Any factor that might contribute to a jet aircraft disaster should be given careful consideration by our airlines. Drinking aloft might prove to be this contributing factor at some unforeseeable

time in the future. At a time when more passengers are needed by our airlines than ever before, it won't take very many jet crashes to drive travelers from the airports. Public relations men can play a vital role in helping to solve this problem by determining just what the feeling of the public actually is—when confronted with all of the facts, pro and con, that might have a bearing on the case.

These are the more important public relations problems likely to be encountered by the airlines in the future. Actually, there are a great many others that may result from technological omissions, or just plain oversight on the part of members of the aviation industry. We are assuming in this discussion that matters such as the protection of passengers from the fiery jet blast, and safety devices such as provision for emergency supplies of oxygen at high altitudes (should a leak in the pressurized cabins occur) will be taken care of. As we mentioned at the beginning of this discussion, these are foreseeable problems which will conceivably present the greatest public relations challenge. Our aviation industry moves at such an accelerated pace, and the public relations difficulties that arise with this acceleration are so unpredictable, that only the future can unveil the true conclusion of this discussion.

THE JET AIRCRAFT

By Donald L. A. Sawyer

THE year 1955 will go down in history as that in which the airlines became a part of the jet age which had reached Great Britain in 1952 but was very slow in spreading to other parts of the globe. The commercial airlines of this country during 1955, placed orders with aircraft manufacturers for jet powered transports worth over one and one-half billion dollars.

Today every major country of the world has at least one commercial jet powered aircraft under development and the transport contest is in full sway between the British and American manufacturers. Appearance of a Russian transport in London in April, 1956 stirred speculation that there will be additional competition in the commercial transport field from behind the Iron Curtain. Certainly the Russian people will attempt to gain support for their jet powered transport by fostering sales to interested countries who may not be in a position to buy from the United States. The United States is, however, in a very excellent position regarding commercial transport aircraft and the ability to produce large numbers in a short period of time.

The French have been somewhat slower than the British with their transport research but their endeavors have been centered around a twin-engine medium-range jet transport designed for use on the

French airline routes in Europe. This aircraft will be in the same class as the British jet and will be used on many of the same routes throughout Europe.

The American jet transports are of longer range than those of the European countries because of the greater distance between major American cities. These transport aircraft must be able to cross the continent on a coast to coast flight; these same airplanes must be able to cross the Atlantic the same way, non-stop. The character of the new transport, at the present time, is patterned after existing transport aircraft with the exception of new engines and higher cruising speeds. A group of smaller jet transports has been proposed but no contract has been signed for these airplanes. This smaller transport is in competition with the turboprop transport that has been ordered in England and America.

Motive power for these new transports will be supplied by the turbine engine; used in the turbojet and turboprop. The new engine is lighter in weight, smaller in size, and greater in power than the piston type engine. It will, however, require more fuel for operation and at low altitudes this fuel consumption is very great. Because of this, these engines operate best at higher altitudes than at present.

The turbojet engine has two main components: the compressor, in the forward end, and the turbine, in the rear.

> "Large volumes of air are drawn into the turbojet, compressed, mixed with fuel and burned continuously. The exhaust product of this burning operates the turbine for the compressor and produces the thrust which pushes the aircraft forward."[1]

> "The turbo-jet engine with its very high efficiency at high speed and high altitude is a natural for long-range deluxe passenger travel where the advantage of speed and comfort outweigh the economic factors of cost per seat mile or ton mile. . . . But the turbojet engine does not fit into short or medium ranges. At takeoff, its power efficiency is a fraction of its power efficiency at cruise. At sea level, its consumption of fuel is multiplied over the fuel required at altitude. A jet transport between New York and Washington never could level off. It would be up and then down like a projectile trajectory."[2]

The limitations imposed on the user by the turbojet engine have forced the introduction of the other turbine engine to take care of those areas where the pure jet is inefficient. It is in this area that the turboprop engine finds its usefulness; it is here also that the airlines do a large portion of their flying. We find the turboprop engine is capable of matching the requirements for higher speed with load-carrying ability and economy at all altitudes. This will be a 425-450 mile an hour airplane. It can get in and out of small airfields. It

---

[1] "Airpower," Curtiss Wright Corporation, Woodridge, New Jersey, p. 10.

[2] Harold H. Dice, "A New Commercial Transport Turboprop Engine the Allison T56 and Aeroproducts Propellers," Allison Division, General Motors Corporation, Indianapolis, Indiana, January 20, 1955, p. 2.

can carry passengers over short and medium ranges comfortably at higher speeds. It can carry payloads of freight and cargo economically.[3]

The turboprop is very much like the jet with the addition of a propeller and reducing gear train in front of the main engine. The operation of the engine is identical with the jet up to the turbine in the exhaust gas stream. The turboprop turbine removes about eighty per cent of the energy from the gas stream and the twenty per cent remains as jet thrust. This eighty per cent is directed through the center drive shaft to the engine compressor and forward to the propeller. The turbojet turbine supplies power to the compressor only.

The more important characteristics of the jet engine are: high thrust, high speed (particularly at high altitude), shrill noise, and high fuel comsumption at low altitudes. The turboprop, on the other hand, has less noise, better efficiency at low altitudes, reverse thrust on runways, shorter takeoff runs, and a slower speed than the jet (about one hundred miles per hour slower).

The turbojet engine will probably be found operating over long distances on non-stop flights. The jet will, in time see service on routes of from five hundred to three thousand miles distance. The shorter limit will depend, to a large extent, on the nature of the short segment flown and its relation to the entire flight. The turboprop on the other hand will eventually be the work horse of the airlines and serve all of the short-haul and intermediate haul flights. They may also enter the long-haul field by operating at a lower fare and carry more passengers per flight than the jet.

As the industry moves further into the jet age, most of these problems are being given careful attention and better and more powerful engines are being developed. At the present time several adverse characteristics are undergoing design corrections and by the time the new transports appear in numbers, about 1960, most of these problems will be eliminated.

The make-up of the jet transport manufacturing industry both here and abroad, will center on those companies active in transport designs. The earliest of these transports will appear some time during 1958 or early 1959. The bulk of the transport orders will not appear on airline routes until 1960 at the soonest. Several turboprop models are flying today, and more advanced versions of these transports will be available to the airlines before the jet models are. The American companies and their aircraft are:

Boeing Airplane Company, Seattle, Washington
Aircraft:

707-120	Available—1958
-220	—
-320 Intercontinental	—1960
707-Junior	—after 1960

[3] *Ibid.*, p. 3.

The junior 707 is a new model created to be competitive with the Convair Skylark, a 70 passenger transport. All aircraft are four-engine jets; the 120 is powered by a Pratt & Whitney J57 engine, and the 220, and 320 are powered by P&W J75 engines. Little information is available on the junior 707 at the present time.

Douglas Aircraft Corporation, Santa Monica, California
Aircraft:
DC-8 Available—1959
DC-9 or Junior DC-8 —1961

The DC-8 will be available with the P&W J57 and J75 engines on the domestic aircraft and the P&W J75 and Rolls-Royce Conway Bypass engine on the Intercontinental models. The DC-9 is a competitive model to the Skylark, smaller in size and lighter in weight. All aircraft are four-engine and pod mounted.

Convair Division, General Dynamics Corporation
Aircraft:
Skylark Available—1960

This is the latest model introduced to the public. A smaller transport, powered by four General Electric CJ 805 (J79) engines, this airplane is designed to operate into and out of all airports used today in commercial aviation.

The foreign manufacturers are more limited and each country is represented by a single company producing a single aircraft. Each has been developed for use by the "flag carrier" of a particular country. They are as follows:

De Havilland Aircraft Company, Ltd. (British)
Aircraft:
Comet IV Available—1958

The Comet IV, a medium-range four-engine transport, is designed for the route structure of the British airlines operating throughout Europe and the Eastern Hemisphere.

SNCA du Sud-Est (French)
Aircraft:
Caravelle Available—1958

The French transport is a twin-engine medium-range transport designed for the French airline routes to the African continent.

Tupolev (Russian)
Aircraft:
Tupolev 104

This is the newest of the jet transports to be unveiled to the public eye. The arrival of this transport in London has caused the Western observers to be on guard for further developments from behind the Iron Curtain. The aircraft is of medium-range and has two engines of about 20,000 pounds thrust.

The turboprop powered transports under development are at present restricted to the United States and Great Britain. The British have been the pioneers of this type transport and only recently has an American company shown interest in this design. The companies presently engaged in production of this transport are:

Lockheed Aircraft Corporation, Burbank, California
Aircraft:

Electra	Available—1958

The Electra is the only American turboprop at present. It is four-engine and is designed for medium-range work.

Vickers-Armstrongs Ltd. (British)
Aircraft:

Viscount 700D	Available—1956
810-840	—1957
Vanguard	—1958

This Viscount, a four-engine medium-range airplane is the most widely used turbine engine powered transport today. The larger version, the 800 series, is fitted with more powerful engines and carries more passengers than its predecessors. The Vanguard is a new design with all the knowledge of the Viscount built into it.

Bristol Aeroplane Company, Ltd. (British)
Aircraft:

Britannia	Available—1957
Bristol 197	—1962

The Britannia is a long-range transport aimed at the British air routes to Africa and Australia. This aircraft will eventually appear on the Atlantic route when the longer range version is delivered. The 197 is a new design incorporating many new developments.

Two other airplanes deserve mention here because they may find their way into the hands of the scheduled airlines. They are both cargo transports designed for the Air Force and both are powered by turboprop engines. The first of these transports is powered by the Allison T56 engine developing about 2,500 shaft horsepower. The aircraft is designed to transport twenty-five tons of cargo over three thousand miles at speeds of over 350 miles per hour. It is the C-130 built by the Lockheed Aircraft Corporation. The other airplane is the C-133, built by Douglas Aircraft Company and is designed to carry 25 tons of cargo over thirty-five hundred miles at speeds of over 350 miles per hour. This airplane is powered by the Pratt & Whitney T-34 turboprop engine developing 6,000 shaft horsepower.

The American manufacturers are the only ones competing amongst themselves and with the foreign companies. The foreign entries are backed by their respective local governments and airlines; the airlines being national in character. Almost half of the available transports are American entries and the back log of orders is heavily weighted in our favor. In a short time, the American industry has forged ahead to lead the world in jet powered aircraft.

In order to evaluate this new transport, selected operating performance data is tabulated for the leading designs.

OPERATING PERFORMANCE DATA

Aircraft type:	DC-8 D	DC-8 I	707 D	707 I
Performance Data:				
Gross Weight T/o	265,000#	287,500#	225,000#	280,000#
Ldg				
Engine number	4	4	4	4
Engine type	P&W JT3	P&W JT4	P&W JT3	P&W JT4
Engine power		10,000#		10,000#
Wing area	2,758 sq. ft.	2,758 sq.ft.	2,400 sq. ft.	2,900 sq. ft.
Wing span	139'9"	139'9"	130'10"	146'6"
Passenger Cap.				
tour.	144	144	125	146
std.	122	132	104	124
Fuel Capacity	17,600g.	21,615g.	17,400g.	21,200g.
Range	3500-4000m.	4400-4800m.	3500m.	5000m.
Cruising Speed	560mph.	580mph.	590mph.	600mph.

Aircraft type:	Comet IV	Caravelle	Tupolev	Skylark
Performance Data:				
Gross Weight T/o	152,500#	90,400#	100,000*	170,000#
Ldg	113,000	79,200	150,000#*	115,00
Engine number	4	2	2	4
Engine type	RR Avon	RR Avon	?	GE CJ 805(J79)
Engine power	10,000#	10,000#	20,000 App.	10,000#
Wing area	2,121 sq. ft.	1,580 sq. ft.	?	?
Wing span	115'	112'6"	?	118'
Passenger Cap.				
tour.	76	91	70	99
std.	58	70	50	80
Fuel Capacity	8,750Imp.g.	3,960Imp.g.		10,000g.
Range			2,000m.	?
Cruising Speed	435knts.	415knts.	450-500mph.	580mph.

* Takeoff weight approximately 100,000 to 150,000 pounds.

Aircraft type:	Viscount	Electra	DC-7C	1649
Performance Data:				
Gross Weight T/o	60,000#	112,000#	125,000#	156,000#
Ldg	54,000	93,400	102,000	123,000
Engine number	4	4	4	4
Engine type	RR DartDA6	Allions501	WrightEA2	WrightEA2
Engine power	1600shp	3,750shp	3,250hp	3,400hp
Wing area	?	1,300 sq. ft.	?	1,850 sq. ft.
Wing span	93'8"	99'	117'6"	150'
Passenger Cap.				
tour.	40	88	88	
std.	59	44	55	64
Fuel Capacity	1,950 Imp.g.	5,250g.	6,260g.	9,600g.
Range	1,425m.	3,000m.	4,600m.	5,000m.
Cruising Speed	320mph.	400mph.	400mph.	400mph.

SOME NOTES ON THE MULTILATERAL AGREEMENT ON COMMERCIAL RIGHTS OF NON-SCHEDULED AIR SERVICES IN EUROPE*

By Edward M. Weld

Asst. Sec. Gen. for Air Transport, International Civil Aviation Organization

The limited scope of this article is to describe the background of the "Multilateral Agreement on Commercial Rights on Non-Scheduled Air Services in Europe" that was opened for signature at the ICAO office in Paris on 30 April 1956.[1] It will not, therefore, attempt to treat the more ambitious but hitherto unsuccessful attempts to reach comparable agreements on commercial rights of scheduled air services, either in Europe or elsewhere, nor the wider aspects of commercial rights for non-scheduled air transport throughout the world.

General Provisions of the Chicago Convention

The point of departure for the work leading up to the Agreement was the 1944 Chicago Convention on International Civil Aviation, which already confers on the 68 members of ICAO certain rights of flight over the territories of these members, expressly excluding, however, the operations of scheduled airlines. As regards the right of non-scheduled flight, Article 5 on the Convention confers this generally upon both non-commerical and commercial non-scheduled flights subject, however, to certain restrictions where the aircraft concerned seeks actually to load or unload traffic within a particular territory. The pertinent language is as follows:

Article 5

"Right of non-scheduled flight

1. "Each contracting State agrees that all aircraft of the other contracting States, being aircraft not engaged in scheduled international air services, shall have the right . . . to make flights into or in transit non-stop across its territory and to make stops for non-traffic purposes without the necessity of obtaining prior permission . . .
2. "Such aircraft, if engaged in the carriage of passengers, cargo, or mail for remuneration or hire on other than scheduled international air services, shall also . . . have the privilege of taking on or discharging passengers, cargo, or mail, *subject to the right of any State where such embarkation or discharge takes*

* Developed by the International Civil Aviation Organization and the European Civil Aviation Conference.

[1] As of 20 August 1956, the Agreement has actually been signed by seven countries: Belgium, Federal Republic of Germany, France, Ireland, Luxembourg, Netherlands and Switzerland.

> *place to impose such regulations, conditions or limitations as it may consider desirable.*" (Emphasis and paragraph numbering supplied.)

The question of what "regulations, conditions or limitations" may or may not be imposed under the foregoing language has been troublesome from the very outset, and the Multilateral Agreement above referred to is essentially an attempt to settle this question, at least as regards the European region.

In its official analysis of Article 5,[2] ICAO has stated that the right of a State to impose "regulations, conditions or limitations" on the taking on or discharging of passengers, cargo and mail by non-scheduled commercial air transport is unqualified, but that it should be understood that the right is not to be exercised in such a way as to render the operation of this important form of air transport impossible or non-effective. This, however, serves to emphasize the difficulty of the question rather than to solve it. The ICAO anaylsis, furthermore, recognizes that the "regulations, conditions or limitations" may be either standing general requirements, or they may be specially formulated for the particular case under consideration.

As regards the substance of the right conferred by *the first paragraph of Article 5,* the ICAO anaylsis[3] has further decided that three types of flight are included:

(i) entry into and flight over a State's territory without a stop;

(ii) entry into and flight over a State's territory with a stop for non-traffic purposes;

(iii) entry into a State's territory and final stop there for non-traffic purposes.

The term "stop for non-traffic purposes" should be taken to include stops where passengers or goods, not carried for remuneration or hire, are embarked or disembarked. To be sure, the term "stop for non-traffic purposes," as defined in Article 96 of the Convention itself, is "a landing for any purpose other than taking on or discharging passengers, cargo or mail" without distinguishing between traffic carried for remuneration and traffic carried free. But from the internal evidence in the Article itself, it appears that the intention was that the taking on or discharging of passengers or goods not carried for remuneration should be covered by the expression "flights into" in the first paragraph. This is because the only exception from the generality of the provisions of the Article in this respect is found in those provisions of the second paragraph relating to the taking on or discharging of passengers, cargo or mail carried for remuneration or hire. A stop for non-traffic purposes should not have its status as such affected by reason of the temporary unloading of passengers, mail or goods in

[2] ICAO Document 7278-C/841, "Definition of a Scheduled International Air Service," page 12.

[3] *Ibid.*, page 8.

transit, if the stop is made for reasons of technical necessity or convenience of operation of the flight.[4]

The provision that the flights may be made without the necessity of obtaining prior permission means that aircraft are entitled to operate on flights of the type referred to without applying for a permit that may be granted or refused at the election of the State to be entered. Indeed, no instrument designated a permit should normally be required, even if automatically forthcoming upon the application. Advance notice of intended arrival for traffic control, public health and similar purposes could, however, be required.[5]

When we come to *the second paragraph of Article 5,* it is clear that it covers only the taking on or discharging of traffic for remuneration or hire, whether monetary or other, which the operator receives from someone else for the act of transportation. The word "also," used to introduce the privilege given by the second paragraph of the Article, would indicate at first glance that this privilege was something entirely additional to what is conferred by the first paragraph. However, when it comes to the matter of actually taking on or discharging traffic in a given country, the "regulations, conditions or limitations" of that country come into full play and may nullify some of the rights apparently conferred by the first paragraph, notably that of making the flight "without the necessity of obtaining prior permission."

Special Situation in the European Region

The foregoing analysis is, of course, intended for the world as a whole, and is not meant to have any special application to the European region. ICAO's attempts to obtain a multilateral agreement were at the outset also on a worldwide basis, but were directed primarily at scheduled services. These efforts having met with reverses that appeared to preclude further attempts for a worldwide all-embracing multilateral for any sort of service, active efforts were suspended for a time.

However, on 19 March 1953, the Committee of Ministers of the Council of Europe adopted a resolution requesting ICAO to convene a conference on the coordination of air transport in Europe, the basic agenda of which was stated to be:

a. Methods of improving commercial and technical cooperation between the airlines of the countries participating in the conference.

b. The possibility of securing closer cooperation by the exchange of commercial rights between these European countries.

ICAO having accepted the invitation, the meeting was duly convened at the headquarters of the Council of Europe in Strasbourg from 21 April to 8 May 1954.

---

[4] *Ibid.*, pages 8-9.
[5] *Ibid.*, page 9.

Among the many problems considered was that of commercial rights for non-scheduled air services, specifically in the European area. There was general agreement at the meeting that some special measures could be taken to liberalize this form of activity within Europe. The discussions made it clear that it would not be possible at that first meeting to reach a multilateral agreement in this matter for European States to apply in a general way to all European non-scheduled commercial services. There was, however, general agreement that non-scheduled commercial air services could be allowed freedom of operation within Europe without prior permission from governments, if such services did not compete with established scheduled services. A criterion of this kind would be difficult to define in a multilateral agreement for purposes of application in practice, but the meeting felt it would be useful to state the principle and to determine certain classes of flight that could be accepted as satisfying the criterion if they could be sufficiently well defined to form the basis of unified international action in the near future and if possible a multilateral agreement in the longer term.

The meeting thus proposed two phases of action on this matter. In the first phase, it was suggested that European States accept the general principle that intra-European non-scheduled commercial operations not competing with scheduled services could be allowed to operate without prior permission from the governments of the States in whose territory the operation is to take place. The meeting then went on to list a number of types of non-scheduled operation which it suggested could be universally accepted as not competing with scheduled air services to any dangerous extent and suggested that operations of these types should not be required to obtain prior permission for international operation, although notification would be necessary for purposes of traffic control.[6]

The meeting then proposed that, in the second phase, States should endeavor to develop a multilateral agreement concerning intra-European non-scheduled air services. In the meantime, the meeting adopted a recommendation intended to give interim application to the foregoing principles, which recommendation is quoted in the margin.[7]

---

[6] ICAO Document 7575-CATE/1, "Report of the Conference on Coordination of Air Transport in Europe," paras. 22-25.

[7] *Recommendation No. 5 of the Conference On Coordination of Air Transport In Europe.* (ICAO Document 7575-CATE/1).

"WHEREAS this Conference considers that intra-European non-scheduled operations should be accorded the maximum degree of freedom to develop, compatible with the safeguarding of the legitimate interests of the scheduled services in the sphere reserved to them by national laws and policies;

WHEREAS progress towards the liberalization of European non-scheduled air services could be achieved by the development of a unified policy within a European multilateral agreement;

WHEREAS it has not been found practicable at this Conference to reach an Agreement upon a unified European policy which could be embodied in such an agreement;

THE CONFERENCE RECOMMENDS:

to the States invited to be members of the Conference, as an interim

Briefly, this recommendation may be characterized as (1) generally favoring free admittance of non-scheduled services not affecting the interests of the scheduled services, but leaving each government free to determine in its discretion which non-scheduled operations would be considered to affect the interests of the scheduled services and reserving the right to require any operator to cease such operations; (2) designating certain classes of flights (humanitarian, taxi-class, etc.) that should be granted freedom of operation; and (3) recognizing that, for other classes of operations, States might require prior permission from their aeronautical authorities.

The meeting also set up a permanent European aviation organization designated the "European Civil Aviation Conference," composed of the States invited to be full members of the meeting,[8] the objectives of the Conference being to continue the work of the meeting, generally to review the development of intra-European air transport with

---

measure until a multilateral agreement on the subject can be concluded,

1. that they accept the general policy that all intra-European non-scheduled flights that do not affect the interests of the scheduled services could be freely admitted to their territories without the imposition of "regulations, conditions or limitations" referred to in the second paragraph of Article 5 of the Convention on International Civil Aviation, provided that such flights comply with the other provisions of that Convention;
2. that each government be understood to be free to place its own interpretation on which operations would be considered to affect the interests of the scheduled services and reserves the right to require any operator to cease any operations affecting the interests of the scheduled services according to that interpretation;
3. that all States, on whatever prior notification they may require for purposes of air traffic control, should accord freedom of operation within their territory to intra-European non-scheduled services of the following types:
   a. flights for the purpose of meeting emergency or humanitarian needs;
   b. taxi-class operations employing aircraft with seating capacity for not more than four passengers, provided they do not become a systematic series;
   c. operations in which a single individual charters the entire space of an aircraft for his own use, or a firm or institution charters the entire space of an aircraft for the carriage of its staff or merchandise, provided that in either case no part of any such space is re-sold;
   d. operations confined to the carriage of freight (it being understood that the provisions of paragraph 2 concerning the possible cessation of operations apply to this category of flight);
4. that for all other classes of non-scheduled operations the State in whose territory the operator desires to exercise commercial rights may require prior permission to be obtained from its aeronautical authorities (except in the case of single flights or flights not of greater frequency than once a month, which would require only prior notification as in paragraph 3 above). Applications for such permission shall be submitted at least forty-eight hours before the first flight is due to commence, unless a State notifies that a shorter notice is required;
5. that each State should notify ICAO, before the 1st October 1954, of its policy with respect to intra-European non-scheduled air services, in order to facilitate the operation of these services."

[8] These States are: Austria, Belgium, Denmark, Finland, France, the Federal Republic of Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

the object of promoting the coordination, better utilization and orderly development thereof. This work was to be undertaken in close liaison with ICAO and without, at least at the outset, the Conference's establishing a separate secretariat of its own, utilizing instead the ICAO secretariat. The drafting of the proposed non-scheduled service multilateral agreement was confided to ICAO and the European Civil Aviation Conference on the basis of the views and proposals put forward at this meeting.

Development of the Agreement

In accordance with the desires of this first Strasbourg meeting, ICAO proceeded to develop a draft multilateral agreement along the lines discussed, in consultation with the various governments concerned, most of whom were visited and individually interviewed by the ICAO officer in charge. This text was submitted to the first meeting of the European Civil Aviation Conference (ECAC) which took place, again in Strasbourg, from 29 November to 16 December 1955.[9]

When this meeting was held, there was little difficulty in establishing the underlying principle that scheduled and non-scheduled operations have complementary, although independent, fields of activity, and that the criterion to be applied in removing "regulations, conditions or limitations" might properly be the extent to which the non-scheduled flights upon which the Agreement confers benefits may be said to harm, either actually or potentially, the operations of national scheduled services. The Conference then proceeded to consider the extent to which the various categories of non-scheduled flight might satisfy this criterion, and it appeared that three principal categories could be distinguished:

1. Flights that, by their nature, could be accorded freedom of operation because they offered no real danger of harming the interests of scheduled air services. These include flights of aircraft engaged in humanitarian or emergency missions, of small aircraft with seating capacity for no more than six passengers, of aircraft entirely chartered without resale of space, and isolated flights of a frequency of not more than once a month.
2. Flights that were permissible if they did not in fact harm the operations of national scheduled air services, but which might be stopped if they did not fulfill this condition. These include (a) all-freight operations and (b) passenger operations between regions which have no reasonably direct connection by scheduled air services.
3. Other flights.

As to the first two categories, it was proposed that they be allowed freedom of operation without the imposition of any of the "regulations,

[9] ICAO Document 7676, ECAC/1, "Report of the First Session of the European Civil Aviation Conference," paras. 34-36.

conditions or limitations" envisaged by paragraph 2 of Article 5 of the Chicago Convention. By this it was intended, among other things, to do away with any possible requirement for prior permission.[10] However, flights in the second category might be prohibited if a State, in its discretion, found that they harmed its scheduled aircraft operations; and the States reserved full power to require such information as would enable them to make any necessary determination as to the extent of any such harm.[11]

As regards other non-scheduled flights (it being, of course, remembered throughout that all non-scheduled flights have the *prima facie* right to operate under Article 5 of the Chicago Convention), the main problem appeared to be to limit the information that might be required to be given in applications for prior permission to make commercial flights, such prior permission being the most troublesome of the "regulations, conditions or limitations" that may be imposed pursuant to paragraph 2 of Article 5. Accordingly the Agreement, as first drafted by the ECAC meeting, spoke merely in terms of prescribing the manner of the exercise of this particular "regulation, condition or limitation," it being provided that the fact of the requirement for prior permission and the conditions pertaining thereto would be prescribed by public regulation, which should not require more than certain specified information. It is provided, moreover, that applications may be made direct to the aviation authority of the State to which the application is made, without passing through diplomatic channels.[12]

Later, however, it seemed best to expand this provision so as to speak not merely in terms of this particular "regulation, condition or limitation," but to make the provision more general, so as to cover also any other "regulations, conditions or limitations" that might be encountered. A new drafting was therefore adopted prior to signature to provide that, in cases other than those covered by Article 2, of the Agreement, where contracting States require compliance with "regulations, conditions or limitations," the terms of any such requirement will be laid down by contracting States in public regulations which shall indicate all information (including the request for prior permission if one is required) that must be submitted.[13] This has the effect of generally relaxing and making more flexible the provision referred to.

---

[10] Agreement (ICAO Document 7695), Article 2(1).

[11] Agreement, Article 2(2).

[12] ICAO Document 7676, ECAC/1, page 33. This is Article 3 of the text of the Agreement as approved by the Strasbourg meeting. The meeting had further considered the question of how the proposed Agreement should be opened for signature or adherence and ratification. In view of the fact that few, if any, of the delegations present at the meeting were provided with powers that would have permitted their signing the Agreement there and then, a date for opening for signature (30 April 1956) was proposed that would allow States the time for any necessary intra-Governmental consultation. Certain delegates indicated that the internal requirements of their States might result in signatures that would be subject to minor changes on procedural or editorial points. (*Ibid.*, para. 40.) Accordingly, a meeting to finalize the text was held in Paris on 26 April 1956.

[13] Agreement, Article 3.

The fact that the Agreement is limited to (a) non-scheduled operations and (b) a certain geographical area, raised questions of definition. It was debated whether the category of non-scheduled air services should be defined on the basis of the official ICAO definition of a scheduled service,[14] but it was decided not to do so. The reason for this decision was that, in the first place, the use of the ICAO definition, which it that of a scheduled and not a non-scheduled service, would mean drafting the Agreement on the basis of what was *not* covered by a quoted definition, a somewhat clumsy device. Furthermore, there appeared to be enough dissatisfaction with the ICAO definition to prevent its use from being generally accepted.

As regards the geographical extent of the Agreement, it covers the metropolitan territories of the contracting States, which would include Corsica and Sardinia in the case of France and Italy, but not French territories in North Africa, nor does it cover outlying islands in the Atlantic Ocean, such as the Azores, nor islands with semi-independent status, such as the Channel Islands.[15] The Agreement does not limit its benefits to flights having both their termini within the region, and intra-European segments of longer flights therefore are intended to be covered.

Conclusion

It is difficult at the present writing to evaluate the importance of the Agreement. It does not, to be sure, constitute in itself an epoch-making step forward in the liberalization of commercial rights in international aviation. Its signatories so far are not many, the area to which it applies is limited, and the rights granted do not go much beyond what the contracting States were granting in practice anyway. On the other hand, it does mark the first time since the Chicago Conference that States have sat down together and worked out any grant whatever of commercial rights. If the International Air Transport Agreement, signed at Chicago by a few States and now practically a dead letter, is discounted as being a product of immediate post-war enthusiasm, the Agreement does in fact represent the first time that a completely self-sufficient system for granting commercial rights on any basis whatsoever has been worked out rationally. To what extent it will serve as a guidepost for future grants of more extensive rights is a question to which time alone can give the answer.

---

[14] *Definition of a Scheduled International Air Service* (ICAO Document 7278-C/841). "A scheduled international air service is a series of flights that possesses all the following characteristics:

(a) it passes through the air-space over the territory of more than one State;

(b) it is performed by aircraft for the transport of passengers, mail or cargo for remuneration, in such a manner that each flight is open to use by members of the public;

(c) it is operated, so as to serve traffic between the same two or more points, either

(i) according to a published time-table, or

(ii) with flights so regular or frequent that they constitute a recognizably systematic series."

[15] Agreement, Article 11.

THE DEVELOPMENT AND PRESENT STATE OF GERMAN AIR LAW[1]

By Professor Dr. Alex Meyer

Honorary Professor and Director of the Institute of Air Law at the University of Cologne; Editor of the "Zeitschrift für Luftrecht"; Chairman of the Legal Committee of the "Wissenschaftliche Gesellschaft für Luftfahrt"; German National Delegate of the "Comité Juridique International de l'Aviation"; Member of the Air Law Committee of the International Law Association; Member of the American Society of International Law; German Delegate for Problems of Air Law at the International Chamber of Commerce in Paris.

IN order to understand the development and present state of German Air Law, one must remember that Germany has lost two wars. Everyone knows the old rule that those who have lost a war, must pay for it. So Germany had to pay heavily and particularly in the field of Air Navigation.

Germany felt this all the more as it had contributed much to the development of Air Navigation before the wars. Only two names need be mentioned: *Otto Lilienthal* and *Count Zeppelin*. Otto Lilienthal was the first to succeed in gliding. His name therefore stands at the beginning not only of German flying history, but of the history of flight in general. Unfortunately he crashed during a test flight in 1896 at the age of 48.

Strenuous efforts of other explorers and pioneers followed these two men and German Air Navigation had just begun to flourish, when it was for the first time violently interrupted in its development by the Treaty of Versailles which in 1918 ended the first world war.

Certainly the wording of the treaty provided only that

> "The armed forces of Germany must not include any military or naval forces."

But indirectly Civil Aviation and Aircraft Manufacture was also impeded, particularly in the early years after the first world war.

Much harder were the consequences which Air Navigation in Germany had to bear after the second world war in view of the complete defeat and unconditional surrender with which Germany was obliged to comply.

The governments of the United Kingdom, the United States of America, the Union of Soviet Socialist Republics and the Provisional Government of the French Republic assumed after the unconditional surrender supreme authority with respect to Germany, because at this

[1] Based on a lecture given at the Institute of International Air Law of the McGill University in Montreal, March 23, 1956.

time in the opinion of the Allies no central government of authority in Germany was capable of accepting responsibility for the maintenance of order, the administration of the country and compliance with the requirements of the victorious Powers.[2]

A *Control Council* was established which possessed paramount authority throughout Germany on matters affecting Germany as a whole.[3] The Control Council, which exercised the rights of sovereignty in Germany for several years after the second world war and enacted its legislation in the form of Proclamations, Laws and Directives, decreed as far as Air Navigation is concerned the following:

Besides the complete abolition of all German Air Forces with all their institutions it prohibited:[4]

> "The production in Germany and the possession, maintenance or operation by Germans of any aircraft of any kind or any parts thereof."

It prohibited further:[5]

> The manufacture, import, export, transport and storage of
>
> a) "Aircrafts of all types, heavier or lighter than air; with or without means of propulsion, including kites, captive balloons, gliders and model aircraft and all auxiliary equipment including aircraft engines and component parts, accessories and spare parts, specifically designed for aircraft use."
>
> b) "Ground equipment for servicing, testing or aiding the operation of aircraft, such as catapults, winches and beacons; material for the rapid preparation of airfields, such as landing mats, special equipment used in conjunction with air photography; excluding however . . . any such equipment and materials for landing fields and air beacons that have a normal peacetime use and are not specifically designed for military use."

It declared illegal in Germany and therefore prohibited the preparation, possession or making use of plans or models of *airfields*, they being considered as military installations.[6]

Finally the Control Council[7] prohibited all *applied scientific research* as

1. Applied aerodynamics, aeronautical structural engineering and aircraft power plants,
2. Rocket propulsion, jet propulsion and gas turbines,
3. Electromagnetic infra-red and acoustic radiation which has as its purpose

---

[2] cf. Declaration of June 5, 1945 regarding the defeat of Germany and the assumption of supreme authority with respect to Germany of the United Kingdom, the United States of America, the Union of Soviet Socialist Republics and the Provisional Government of the French Republic.

[3] Control Council, Proclamation No. 1, 30th August 1945.

[4] Control Council, Proclamation No. 2, 20th September 1945, Section VIII, No. 30.

[5] Control Council, Law 43, 20th December 1946, Art. I alinea 1 in connection with Schedule A, Group V.

[6] Control Council, Law 23, 10th April 1946, Art. I, II.

[7] Control Council, Law 25, 29th April 1946, Art. II, Schedule A.

a. . . .

b. the determination of the position of aircraft.

c. the remote and the automatic control of aircraft.

Furthermore *"fundamental scientific research,* of a wholly or primarily military nature" was completely prohibited.[8] "Fundamental scientific research, which is not of a wholly or primarily military nature" was prohibited "insofar as it required for its conduct installations which on account of their size or their special or peculiar construction, would be valuable for any applied scientific research of a wholly or primarily military nature."

Scientific research not prohibited in this way could be conducted only "by a research establishment authorized by the appropriate Zone Commander"[9] and each authorized research establishment was obliged to sumbit to this Commander:

(a) Technical Reports every four months showing details of all its activities.

(b) Annual Reports in as non-technical language as possible covering all work done in the year.

(c) A complete statement of the plant, apparatus and equipment existing in the research establishment, as may be required by the Zone Commander.

(d) A complete statement of accounts upon the demand of the Zone Commander.

All research and technical personnel employed in a research establishment were to be registered in accordance with the regulations issued by the appropriate Zone Commander.[10]

A *Military Security Board* was created, on January 17, 1949 directly subordinate to the united Commanders in Chief of the Western Zone.[11] Its task was "that of ensuring that the development of general activity in Germany, the purpose of which is to repair her damages, and enable her to participate in international cooperation, is not deflected from its peaceful aims, by risking the rebirth of a war potential."

Further a *Civil Aviation Board* was established by the Statute of the High Allied Commission of 20th June 1949.[12]

The first changes and relief measures in the legislation of the Allies in Germany concerning Air Navigation took place in the years 1950 and 1951. Already in 1948 various Air Navigation Journals in neutral Countries[13] had expressed the view that it seemed impossible to exclude a State of 50 million inhabitants forever from air navigation, now a regular means of transport.

---

[8] Law 25, Art. III.

[9] Law 25, Art. IV.

[10] Law 25, Art. V. VI.

[11] The Department of State Bulletin, Vol. XX, No. 502, February 13, 1949, p. 195-197.

[12] Dept. of State Bulletin, Vol. XXI, No. 523.

[13] Interavia 1948, No. 11, p. 605; Swiss Aero Revue, October 1948.

The results of the relief granted in 1950 and 1951 by the Law No. 24 of the Allied High Commission of March 30, 1950 and its Regulations and by the Law No. 61 of the Allied High Commission of July 19, 1951 amending Law No. 24 were the following:[14]

The general prohibition to build, use and possess aircraft, did not refer any longer to:

1) "Meteorological balloons;
2) balloons without power of propulsion and not equipped with or carrying equipment specially constructed or adapted for ground or air photography or observation, or for the delivery of explosives or missiles;
3) gliders without power of propulsion, weighing less than 400 kg when empty, and constructed or adapted to carry not more than two persons;
4) model aircraft not directly related to the development, manufacture or operation of aircraft or to experiments or research on aircraft."

The *Military Security Board* or the *Civil Aviation Board* could authorize:[15]

a) "The acquisition, construction operation of airports;

b) the manufacture, production, installation, import, export, transport, storage, possession, ownership and use of articles and products included in Group V of the Schedule of Law No. 24 (amended)[16] and the repair, maintenance and operation of aircraft;

c) the construction or modification of plant or equipment intended or adapted for producing such articles and products."

But no change took place in this time in reference to the Scientific Research in Air Navigation.

All limitations imposed in Western Germany in Air Navigation ceased only with the enactment of the *Treaties* of Paris of October 23, 1954 on May 5, 1955. By these treaties the *Occupation Statute*[17] promulgated on 12 May 1949 by the Military Governors and Commanders in Chief of the Western Zones was revoked and the Allied High Commission and the Offices of the Land Commissions in the Federal Republic were abolished.[18]

It is quite obvious that the long interruption of nearly ten years, in which any construction and operation of aircraft with power of

---

[14] Schedule to Law No. 24 as amended by Law No. 61, Group V. Official Gazette of the High Allied Commission for Germany, No. 63, August 29, 1951, p. 1051.

[15] Regulation No. 9, under Law No. 24 as amended by Law No. 61, Art. 2. Official Gazette of the High Allied Commission for Germany, No. 63, August 29, 1951, p. 1091.

[16] Group V mentions: "aircraft heavier or lighter than air with or without means of propulsion"; "auxiliary equipment of aircraft, including aircraft engines and component parts, accessories and spare parts, specifically designed for aircraft uses"; "aviation ground equipment and installations as follows . . . ".

[17] cf. Official Gazette No. 1, September 23, 1949, p. 13 et seq.

[18] cf. the Proclamation of May 5, 1955; Official Gazette of the Allied High Commission for Germany No. 126, May 5, 1955, p. 3272.

propulsion and the scientific research in Air Navigation were forbidden, created a large gap for Germany in the development of Air Navigation, which even now is not yet filled.

Effects On Air Law Development

The same took place in *German Air Law. Before the end of the second world war* the following laws and orders were enacted:

1) The *Air Navigation Act* of August 1, 1922, republished in the wording of August 21, 1936 with amandments of Sept. 27, 1938 and Jan. 26, 1943.[19]
2) The Air Navigation Order of July 19, 1930, republished in the wording of August 21, 1936 with amendments of March 31, July 12, December 15, 1937, September 30, 1938.[20]
3) The *Air Customs Order* of May 5, 1941.[21]

Besides Germany ratified the following Conventions:

a) The *Warsaw Convention* of October 12, 1929 on September 30, 1933.[22]

A German Act to put this Convention into effect was promulgated on December 15, 1933.[23]

b) The *Convention relating to the Precautionary Arrest of Aircraft*, signed in Rome on 29th May, 1933. A German Act regarding the inadmissibility of the Precautionary Arrest of Aircraft was issued on March 17, 1935.[24]

Germany was also a member State of the *International Sanitary Convention for Aerial Navigation* of April 4, 1933[25] and enacted a German Order against the extension of infectious diseases by air travel on June 2, 1937.[26]

All these laws and orders enacted by Germany before the end of the second world war were never abrogated either by the Control Council or by Orders of the Occupying Forces or the Occupation Statute. Naturally some provisions were superseded, because the Air Navigation Administration built up before the war had ceased to exist. But all the other provisions remained intact. There was never any reason to abrogate this German Air Legislation as it did not contain any specific Nazi provisions.

But as long as any flying activity was forbidden to Germans, all the laws and orders enacted by Germany before the end of the second world war, actually existed only on paper because they were not applicable to the air traffic of foreign aircraft over Germany, licensed by the Civil Aviation Board and here they were in practice not always observed.

---

[19] RGBl. 1936 I, p. 653; 1938 I, p. 1246; 1943 I, p. 69.
[20] RGBl. 1936 I, p. 659; 1937 I, p. 432; 1937 I, p. 815; 1938 I, p. 1327.
[21] Reichsministerialblatt 1941, p. 111.
[22] RGBl. 1933 II, p. 1039.
[23] RGBl. 1933 I, p. 1079.
[24] RGBl. 1935 I, p. 385.
[25] Shawcross, No. 1047 et seq.; RGBl. 1935 II, p. 815.
[26] RGBl. 1937 I, p. 611.

Similarly the right conferred by the present *Constitution of 1949*[27] to the Federal Government to exercise legislation in Air Navigation existed only on paper, as long as any flying activity was forbidden to Germans. In order to ensure the accomplishments of the basic purposes of the occupation, the *Occupation Statute* reserved to the occupation authorities all power in *Civil Aviation,* "including the right to request and verify information and statistics needed by the occupation authorities."

Naturally, under these circumstances no development of German Air Law could take place during the time, in which any flying activity was forbidden to Germans.

In the opinion of the *"International Civil Aviation Organization"* (ICAO) the Federal German Republic could not become a member of this organization as long as it had no sovereignty in Air Navigation. Even the *"Legal Committee"* of the ICAO did not think it appropriate to invite representatives of Western Germany to participate:

1) in the sessions at which it drafted the *Convention on the International Recognition of Rights,* signed in Geneva June 19, 1948[28] nor
2) in the sessions concerning the Revision of the international *Convention relating to the damage caused by aircraft to third parties on the surface,* signed in Rome on 29th May 1933, which led to the new Rome Convention of October 7, 1952.[29]

Finally Germany could not participate

3) in the sessions of the *"Legal Committee"* concerning the *Revision of the Warsaw Convention* of October 12, 1929, though Germany has signed and ratified this Convention.

This situation changed only at the moment when *Germany's* sovereignty in Air Navigation was restored. This time marks the resumption of German air legislation. Two laws and various orders have so far been enacted. The laws concerned the establishment:

1) Of the *"Federal Office for Air Navigation"* ("Luftfahrtbundesamt"), established on November 30, 1954, the functions of which consists essentially
   a) in the admission of aircraft except balloons and gliders, and of model aircraft,
   b) in the registration of aircraft,
   c) in cooperating in search and rescue measures.[30]
2) Of the *"Federal Office for Air Traffic Control"* (Bundesanstalt für Flugsicherung"), established on March 23, 1953, the functions of which consist in ensuring the safety of Air Traffic.[31]

The Orders and Regulations which amended partly the Air Navigation Order of 1930 were the following:

---

[27] Bundesgesetzblatt (BGBl.) 1949, Part I, p. 1 et seq.
[28] 15 Journal of Air Law 1948, p. 348 et seq.
[29] 19 Jounral of Air Law 1952, p. 447.
[30] BGBl. 1954 I, p. 354; Zeitschrift für Luftrecht (ZLR) 1955, p. 130 et seq.
[31] BGBl. 1953 I, p. 70 et seq.; cf. ZLR 1953, p. 178, p. 363.

1) The *Sixth Order of* November 5, 1954, concerning the nationality and registration marks to be borne by aircraft.[32]
2) The *Seventh Order* of June 21, 1955, concerning the test regulations for flight crew members and other service personnel engaged in Air Navigation and for Air Instruction.[33] (By both orders the German law was adapted to the standards and recommendations in Annex 1 of the Convention on International Civil Aviation.)
3) The *Test Regulations for Foreign Aircraft* of August 19, 1953.[34]

The following further Orders were issued:

1) An Order of May 11, 1953 completing the *Customs Air Order* and giving customs facilities.[35]
2) An Order of January 6, 1954 concerning the *taking of photographs*, which requires permission from the authority concerned for taking photographs from aircraft.[36] It is questionable whether such an Order is necessary. In *Switzerland* the taking of photographs from aircraft is unlimited, provided that the photographs do not concern military constructions.[37]
3) An other Order of February 14, 1955 gives exemptions from the obligation of having *passports and visas* particularly for the crews of scheduled airlines.[38]
4) The Federal Ministry of Transport recognized further the *certificates* issued to German Airmen by member states of the ICAO.[39]
5) It is again possible that aircraft belonging to a person not residing in Germany may temporarily enter Germany in the course of a commercial or touristic flight exempt from custom duties, if the aircraft is covered by a *carnet*, issued under the guarantee of a club or association belonging to the Fédération Aéronautique Internationale in Paris.[40] The German member of the F.A.I. is the German Aero Club. This Club also issues the carnets (triptych) for German aircraft flying temporarily in foreign countries.
6) Finally
   a) a law concerning the *recognition of a mortgage* (Hypotheques) contractually created as security and for the payment of a debt
   b) and other Orders are in preparation.[41]

Western Germany participated again for the first time after the war in the *Diplomatic Conference for the Revision of the Warsaw*

[32] BGBl. 1954 I, p. 302 et seq.; ZLR 1955, p. 61 et seq.
[33] BGBl. 1955 I, p. 321 et seq.; ZLR 1955, p. 295.
[34] BGBl. 1953 I, p. 1033; ZLR 1954, p. 68.
[35] Bundesanzeiger 215 1953 No. 95, p. 1; ZLR 1953, p. 363.
[36] Nachrichten für Luftfahrer (NfL) Part B 1/54; ZLR 1954, p. 155.
[37] Amtliche Sammlung (AS) 1951, 118.
[38] BGBl. 1955 I, p. 77 et seq.; ZLR 1955, p. 217.
[39] Bundesanzeiger 1955 No. 90, p. 3; ZLR 1955, p. 224.
[40] ZLR 1955, p. 296.
[41] ZLR 1955, p. 298 et seq.

Convention at the Hague September 6-29, 1955,[42] convened by the ICAO and has been granted membership in ICAO.[43] The *Lufthansa* became a member of IATA again on June 29, 1955.[43a]

Naturally before Germany became a member of ICAO, flying into Germany after the war was not easy. On the contrary it was not only necessary that the Scheduled International Air Service should have special permission or authorization to operate over or enter a foreign territory as the Convention of Chicago requires, but everyone wishing to fly into the occupied territory of Germany needed a permit from the Allied Permit Office concerned. But this was true not only for those wishing to enter Germany by air but everyone, wishing to enter Germany either by railway, car or foot had to secure a permit. For a long time a permit for each Zone of Germany was needed and persons entering a Zone without the necessary permit could encounter trouble.

German Air Law Studies

The activities of the *German Institute of Air Law* and of the Journal published by it were also interrupted for a long time. The *German Institute of Air Law* was established in 1925 in Konigsberg by *Professor Schreiber*. After his early death in 1929 it came under the direction of his former Assistant *Professor Oppikofer*. The German Institute of Air Law must have had at this time a very good reputation. For as far as I remember, when in August 1929 the American Air Law Institute was established at the Northwestern University, in Chicago, the Journal of Air Law reported:

> "The Institute Organization is patterned after the Institute of of Luftrecht at Königsberg in Prussia, founded by the late Dr. Otto Schreiber."

The Institute was transferred in 1935 to Leipzig, where the University had offered a professorship to Professor Oppikofer. He was of Swiss nationality and returned to Switzerland in 1939.

The successor of Professor Oppikofer as Director of the Institute was the Chief of the Legal Department of the Air Ministry, *Professor Schleicher*. He took charge of the Institute, which was transferred to Berlin, for 1940 till 1943, on which date the Institute ceased to operate. Dr. Schleicher himself, a modest and typical conscientious official who would have never been regarded as being involved in the plot on the life of Hitler on July 20, 1944, was nevertheless a tragic victim of this day. He was arrested and condemned to death by the Volksgerichtshof evidently because his wife was related to one of the conspirators. His brother, a doctor in the army, came to Berlin to hand over to the President of the Court a petition for a pardon. At the moment of his arrival at the Court a bomb fell on the building and

---

[42] ZLR 1956, p. 1 et seq.
[43] ZLR 1955, p. 293; ICAO-Bulletin June-August 1955, p. 23.
[43a] ZLB 1955, p. 287.

killed the President. Being a doctor, he was brought to the body to help if possible. He asked: "Who is the person lying on the ground?" The answer was that it was the President of the Court. "How strange," he said, "just when I had the intention of handing him a petition in favor of my brother in prison." The Minister of Justice who heard of this event, postponed the carrying out of the death sentence. Nevertheless Dr. Schleicher did not escape his fate.

This was one of the most deplorable human losses suffered by the German Science of Air Law. Besides this it suffered other human losses, and also heavy material losses. The whole library and the irreplaceable files of the Institute of Air Law were lost, though they had been stored outside Berlin; some were destroyed by bombs, others just disappeared.

I was asked in 1950 by the University of Cologne whether I would be prepared to give lectures in Air Law at the University and reconstruct the Institute, I was faced with a real vacuum. However, by a lucky chance it was possible to get many books again and I am particularly thankful to Mr. Roper, who was at this time Secretary General of the ICAO. He sent us many ICAO documents. Now we again have more than a thousand volumes. We were also able to continue the old "Archiv für Luftrecht" under the present name of "Zeitschrift für Luftrecht."

In addition we have in Germany a *"Scientific Society for Air Navigation"* which established a *"Legal Commission"* in 1926. The task of this "Legal Commission" is to discuss all air legal matters of general interest and particularly to take part in the preparation of international Conventions and Agreements, which are to be signed by Germany. Therefore the "Legal Commission" eagerly examined the proposals for the Revision of the Warsaw Convention and adopted different Resolutions, which were brought to the notice of the German Delegation at the Hague Conference. Various decisions of the Hague Conference correspond to the proposals of this German Legal Commission.

If we now turn our attention to some Problems of Air Law, I think it would be appropriate to deal briefly in the first instance with a general problem of Air Law which affects many countries. This problem concerns the *competences in air legislation and air administration* between a Federal Government and the Governments of the individual States, or in *Canada* between the legislative powers of the Parliament and of the legislatures of the provinces in regard to the regulation of Aeronautics.

When discussing this problem, one must pay attention to the fact that there is a difference between the question whether a State has *"de jure"* sovereignty over the Air Space above its territories, and the question how far a State is entitled *"de facto"* to exercise the rights deriving from this sovereignty.

In Germany there was never a controversy such as existed in the US between the School of States Rights and the National School as to whether sovereignty over the air space above the territory belongs *"de jure"* exclusively to the Federal Government or to the individual States.

In Germany it was never contested that "de jure" in a federal State the sovereignty of the Federal Government extends in the air space above the whole federal territory and that the sovereignty of the individual States extends in the air space above their territories. The Federal Government and the individual States have de jure "concurrent control" in the air space above their territories. This follows from the principle that the air space over a nation is an integral part of the nation's territory, and has so been by nature from the earliest days. The different areas of the earth are not to be considered as a plane surface, but can only be conceived three-dimensionally as mankind is also a three-dimensional being. Therefore the argument that the air space did not become part of a national territory until nations had the physical ability to fly in it and to control it, is, in my opinion, erroneous. The sovereignty of the States in the air space over their land and waters is a compulsory conseqence of the natural connection between the air space and the land and water territories below it, though this may have appeared to us as a reality only since air navigation began to develop.

This opinion is also shared by Professor Cooper in his excellent study

> "State sovereignty versus Federal sovereignty of navigable air space."[44]

and in his study

> "Roman law and the Maxim cujus solum in international Air Law."[45]

Quite another thing however is the question how far the Federal Government and the individual States are *"de facto"* entitled to exercise their sovereignty in the air space above their territories.

This is a question of the Constitution of the State concerned.

The solution of this question differs in Germany from that in the US, because there is a difference in the Constitution of the US and the Constitutions of Germany of August 11, 1919[46] and the present Constitution of May 23, 1949,[47] both of which are the basis for the national German Air Law.

In the *Constitution of the US* there is no special provision concerning Air Navigation. Nor was a constitutional amendment concerning Air Legislation and Air Administration, accepted by the Congress, as was suggested by the American Bar Association in 1921. By enacting

---

[44] cf. p. 37.
[45] cf. p. 43.
[46] RGBl. 1919, p. 1383 et seq.
[47] BGBl. 1949 I, p. 1 et seq.

the *"Air Commerce Act of 1926"* and the *"Civil Aeronautics Act of 1938"* the Congress therefore was obliged to rely on one of the clauses, laid down in the Constitution which seemed capable of being applied to Air Navigation, such as the Admiralty Clause, the Treaty Power, the War Power, the Postal Power, the Commerce Power. The Congress finally relied predominantly on the *"Commerce Power."*[47a]

In *Canada*[48] a similar question arose, as to whether the Parliament of the Dominion of Canada should alone legislate on the control and regulation of aeronautics or whether it is to be properly controlled by province laws with the Dominion's jurisdiction correspondingly limited. Here the Privy Council declared in 1932 that the Dominion has full national control of aeronautics in order to perform the obligations towards foreign countries arising under the treaties between the Empire and such foreign countries as well as on the ground that "aerial navigation" is a class of subject which has attained such dimensions as to affect the body politic of the Dominion. The Supreme Court later approved this declaration. "This means nothing more than that the Dominion, not the provinces, has legislative power to regulate the air space rights so as to authorize and regulate air navigation."[49]

The situation in *Germany* was quite different.[50] The Constitution of Weimar of August 11th, 1919, mentioned "Air Navigation" in Art. 7, Number 19 and declared that the Federal Government is entitled to legislate on railways, inland water navigation, and all traffic by power driven vehicles on land, water, and in the air. On this legal basis the German Diet (Reichstag) accepted the Air Navigation Act of August 10th, 1922.[51] However, the conferring of *legislation* in Aeronautics on the Federal Government did not also give to the Federal Government all power of *administration* in Air Navigation.

Before the Nazi Regime the Federal Government had no power in police affairs. These lay within the competence of the States. Therefore administration in Air Navigation was divided between the Federal Government and the States.

The organization of the Air Navigation Administration naturally changed fundamentally when the National Socialist Government came into power. A law of January 30th, 1934[52] conferred all rights of sovereignty on the Federal Government to which the States became subordinated.

[47a] cf. Willebrandt, Federal Control of Air Commerce, Journal of Air Law 1940, p. 204 et seq.; Hilbert, Jurisdiction in High Seas Criminal Cases, 18 Journal of Air Law, p. 427 et seq. 1951.

[48] Cooper, Roman Law and the Maxim "Cuis est solum" in International Air Law, p. 41; Willebrandt, Federal Control of Air Commerce, 11 Journal of Air Law, p. 206, 1940.

[49] cf. l.c. Cooper, p. 43.

[50] Lorenz, German Air Law, 11 Journal of Air Law, p. 111, 1940 et seq.; p. 218 et seq.

[51] cf. RGBl. 1922 I, p. 681 et seq., republished 1936, cf. p. 6 note 19 of this article.

[52] RGBl. 1934 I, p. 75.

An Air Ministry,[53] as a Reich Authority, comprising the whole administration of Air Navigation, including the Air Police (Air Supervision), was created, on which 14 Air Officers (Luftamter)[54] in the States were dependent.

Furthermore, the new authority had to protect the safety of flying by providing the air weather service and was charged with the air protection against air raids[55] and finally with the command of the air forces.

All this changed again with the end of the National Socialist Regime. Certainly everyone today is happy that the Nazi Regime ended, but in so far as legislation and administration of Air Navigation were centralized in the hands of the Federal Government, one must say that from the point of view of Air Navigation such a centralization seems to be useful, because the international character of Air Navigation does not leave much room in a Federal State for legislation and administration by the individual States in Aeronautics.

According to the *present Constitution of the German Federal Republic* of May 23rd, 1949, the States are no longer subordinated to the Federal Government as under the Nazi Regime. The *Federal Government* has competence only in matters which are delegated to it by the Constitution. Thus Art. 73 No. 6 of the Constitution provides:

> "The Federal Government has exclusive legislation in Air Navigation."

But on the other hand Art. 30 and 83 of the Constitution provide:

Art. 30: "The States are charged with the exercise of public powers and the performance of public functions insofar as the Constitution does not provide or admit other regulation."

Art. 83: "The States carry into effect the federal laws as their own affairs insofar as the Constitution does not provide or admit other regulation."

However, there is no general provision in the Constitution that the carrying into effect of Air Laws shall belong to the Federal Government. In this respect the Constitution foresees only that separate federal authorities, or bodies may be established by federal law, if needed.

Based on this provision of the Constitution the two—already mentioned—federal authorities, the "Federal Office for Air Navigation" and the "Federal Office for Air Traffic Control" have been established.

The national machinery for legislation and administration relating to Civil Aviation in Germany is therefore constructed as follows: The *Federal Minister for Transport* or the Department for Air Navigation in his Ministry has the following functions: Like the Ministries of Air in all countries, he has the general duty to organize, carry out, and

---

[53] RGBl. 1933 I, p. 241.

[54] RGBl. 1934 I, p. 310 et seq.

[55] RGBl. 1935 I, p. 827, rectification p. 1092 in the wording RGBl. 1939 I, p. 1762 et seq.

encourage all measures which may be appropriate to develop civil aviation and to promote its safety and efficiency as well as all research concerning air navigation.

In detail the Department of Air Navigation in the Ministry of Transport has the *legislative function* to draft all laws and orders concerning civil aviation, if necessary in consultation with other Ministries concerned. The legislation itself is enacted by the Parliament.

Regarding the *administrative functions* of the Minister of Transport an agreement has been signed on July 8th, 1955 between the Federal Government and the Governments of the States, for the interval in which the competences in Air Administration between the Federal Government and the Governments of the States are not yet fixed by law, defining the powers in civil aviation administration between the Federal Government and the States.[56]

This agreement provides that, insofar as federal powers are not conferred upon the Federal Office for Air Navigation and the Federal Office for Air Traffic Control, the Federal Minister of Transport (Department Air Navigation) has in particular the following powers:

> The complete regulation of air traffic with foreign nations.
>
> The imposing of prohibited areas.
>
> The granting of permission for the landing of foreign aircraft outside airports and landing places.
>
> The licensing and supervision of airlines which operate over more than one State in Germany.
>
> The granting of permission for public competitions or displays in which aircraft take part if these public events extend over different States in Germany.
>
> The decision whether aircraft must have radio installations.
>
> The granting of permission for flights of German aircraft in foreign States and the forwarding of applications for such flights to the foreign authorities.

If we now take a short look at the *Air Navigation Act of 1922* which is, as already said, still in force, insofar as it is not superseded, this Act differs in several respects from the Civil Aeronautics Act of 1938 of the US. First, the German Air Navigation Act does not give, as the Aeronautics Act of 1938 does, a summary of definitions at its beginning. In Germany the opinion prevails that it is better to let the Courts give definitions.

Naturally it is not true that there are no definitions at all in the Air Navigation Act, but where such definitions are given, they are placed in the paragraph concerned: thus § 8 gives a definition of the term "airman," and § 11 of the term "air navigation enterprise."

The term *"aircraft"* is defined neither in the German Air Navigation Act nor in the German Air Navigation Order. Both only give examples of what they consider to be an aircraft, but this enumeration is in no way limitative. As "aircraft" are considered planes, airships,

---

[56] NfL, Part B, 48/55; ZLR 1956, p. 135 et seq.

gliders, balloons (captive and free), parachutes, kites, models heavier than five kg.

On the other hand I believe that the definition of the term "aircraft" given in the "Civil Aeronautics Act 1938," Section 1, Number 4 for aircraft saying:

> **"Aircraft means any contrivance now known or hereafter invented, used or designed for navigation or flight in the air."**

is rather wide, for it covers what otherwise might be classed as projectiles as well as toys. But both cannot be regarded as aircraft in a legal sense. I think therefore that aircraft means only: Any machine which can derive support in the atmosphere from reactions of the air and secondly which is thought of by the public as aircraft. For this reason it seems impossible to consider rockets which do not need support in the atmosphere from reactions of the air as aircraft. Likewise all regulations for aircraft and the air space cannot be applied without a special agreement to the outer space and to spacecraft.

As opposed to the US Civil Aeronautics Act of 1938 the *German Air Navigation Act* contains not only provisions of public law but also of private law. It has three parts.

Part I deals with public law and provides under the title "Air Traffic" rules regarding

> **the necessary admissions of aircraft,**
> **the licensing of air crew,**
> **the permission to give instruction to pilots,**
> **the permission to establish and operate airports and enterprises which by way of trade carry persons or property by aircraft ("Luftfahrtunternehmen") and the permission to hold competitions or displays in which aircraft take part ("Luftfahrtveranstaltungen").**

Part I deals further with traffic regulations, expropriation and some general rules empowering the government to issue statutes covering certain problems and rules for the decision of the administrative authority.

Part II deals with liability, *Part III* with penalties.

As far as *private law* is concerned, it may be of interest to note that the principles of the *Warsaw Convention* were introduced into the German Air Navigation Act in the middle of the War (1943) in connection with a regulation concerning the liability of the Air Forces.[57]

But the German legislator amended some provisions of the Warsaw Convention, and one must say that these amandments are to be considered as improvements of the Warsaw Convention.

> **1. First the operator is considered to be also liable for those objects which the passenger takes charge of himself (Art. 29 a), while the Warsaw Convention does not regulate the material conditions of liability of the carrier with respect to these objects and only limits the liability of the carrier to the sum of 5,000 P.Fr.**

[57] cf. RGBl. 1943 I, p. 69.

2. The rules of liability of the Warsaw Convention are declared applicable to gratuitous transportation, but the carrier is entitled in these cases to exclude his liability. (Art. 29 a, 29 f).

3. The provision of Art. 20 II of the Convention that the carrier is not liable in the carriage of goods and baggage if he proves that the damage was occasioned by an error in piloting, in the handling of the aircraft or in navigation, is cancelled in the German Law of 1943. The Hague Conference passed the same resolution.

4. Finally a very important provision was added (Art. 24 g), saying that all air navigation enterprises are obliged to insure the passengers against accidents. In this way every passenger using a German airline is insured by the very act of purchasing a flight ticket. In my opinion this is a very good provision because it excludes any controversy on the question of fault in case of an accident.

I know that in other countries and particularly in the US the carriers do not wish this compulsory insurance. They say that such an insurance which does not exist for any transportation on land is a discrimination against Air Navigation, because air navigation is now not less safe than the other means of communication, and that furthermore the compulsory insurance would raise premiums and thus prices of tickets. But both arguments are erroneous. Certainly air navigation now is no more dangerous than travelling by railway, bus, or ship. But if an accident takes place, this accident generally differs from accidents on land and sea insofar as in many cases all the persons carried are killed and it is thus rather difficult to determine the fault. In all these cases the advantages of insurance are evident as the insurance sums are paid without any fault being proved.

Because of the fact that all indemnity that is paid on the basis of the passenger's insurance is to be deducted from the amount of liability for damage to be paid by the carrier, the premiums of insurance cannot be much higher than if there existed only an insurance for liability. These premiums are indeed only so little higher that they have no effect on the ticket prices.

As an observer of the International Law Association (ILA) I proposed at the Assembly of the ICAO in Geneva in 1948 to introduce the compulsory insurance of passengers in a revised Warsaw Convention, but I failed. Only Switzerland and Italy supported me. Neither the Legal Committee nor the ICAO were subsequently prepared to propose an international agreement concerning the compulsory insurance of passengers.

The Hague Conference recommended that ICAO study this question.[58]

Finally, I should like to deal briefly with a question, peculiar to *criminal air law*. This question concerns the problems of jurisdiction with respect to criminal acts committed on board aircraft in flight.

[58] cf. The Hague Conference, Document No. 97; ICAO—The Hague Conference, SR/21.

Besides the general interest of this question, it sems to me to be worthy of a short discussion because in the US a court came to a decision to which a German court according to German penal law could not have come. I mean the decision of the District Court, Eastern District of New York of March 7th, 1950 in the well known case of United States versus Cordova and Santano.[59] In this case, in which an affray began between the passengers Cordova and Santano on an American owned plane carrying 60 passengers on the route San Juan - Puerto Rico - New York on August 1948, Cordova and Santano had brought on board several bottles of rum and continued to drink in the plane. They had already had a convival toasting with rum on land with well-meaning friends and relatives.

When the pilot who had take his coat off because of the heat, went to stop the fight, he was attacked by Cordova and bitten on the shoulder, drawing blood. Cordova also struck the stewardess. He was locked up for the remainder of the trip and later indicted. The Court decided, it had jurisdiction to hear the case and found the defendant guilty of assult and battery, but granted a motion for arrest of judgment of conviction on the ground that there is no federal jurisdiction to punish those acts.

The Court found that assult and battery are only punishable by a United States Court, when committed within the admiralty and maritime jurisdiction of the United States and that the act defining the admiralty and maritime jurisdiction confined itself to crimes

> "committed *upon* the high seas or any other water within the admiralty and maritime jurisdiction of the United States and out of the jurisdiction of any particular State,
>
> *or* when committed within the admiralty and maritime jurisdiction of the United States and out of the jurisdiction of any particular State *on board any vessel* belonging in whole or in part to the United States or any citizen thereof or to any corporation created by or under the laws of United States or of any State, Territory, or District thereof."

The Court decided that

1. an "airplane" was not a "vessel" and held
2. that "*upon* the high seas" could not be extended to mean "*over* the high seas." The acts complained of did not therefore in the opinion of the Court meet one of the two tests required for making operative the Statute condemning striking, wounding, beating, and simple assult within the admiralty and maritime jurisdiction of the US.

---

[59] cf. United States Aviation Reports 1950, p. 1 et seq.; Hilbert, Jurisdiction in High Seas Criminal Cases, Journal of Air Law 1951, p. 427 et seq.; 1952, p. 25 et seq.; A. H. Meyer, Jurisdiction over Crimes committed in Aircraft while flying over the High Seas, Journal of Air Law 1951, p. 115 et seq.; Knauth, Crime in the High Air—A Footnote to History, 1951; ZLR 1952, p. 84 et seq.

Such a decision could not have been reached in *Germany* as § 5 of the German Penal Code has provided since 1940 that

> "German criminal law shall apply to acts committed on a German ship or a German aircraft regardless of the law of the place of commission."

Similar provisions are issued in Great Britain, Italy, Poland, and China.

The gap in American law is now filled. The President of the United States signed a new law on July 12, 1952, amending the United States Code by the addition of a new provision which assures jurisdiction in the Federal Courts to deal in future with certain common law crimes of violence, committed on board American aircraft in *flight over* the high seas or *over* waters within the admiralty and maritime jurisdiction of the United States.[60]

It is therefore no longer possible that a passenger in an American plane over the high seas can bite the pilot in the shoulder without risking punishment.

---

[60] 19 Journal of Air Law, p. 354 et seq. (1952).

RECENT ADDRESSES

AMERICAN CIVIL AIRPOWER AND WORLD AVIATION*

BY STUART G. TIPTON

President, Air Transport Association of America

PEOPLE take for granted the miracles of the age in which they live. In our day, what would have seemed miraculous to the grandfather in his boyhood is scarcely noticed by the grandson. And so it is that in 1956, most persons never give a second thought to the vast international air network, operating under the flags of many nations, which today knits the Free World together.

Yet, the functioning of that network is vital to all of us—even to those of us who do not persoally fly upon it or send our freight or mail over it. The existence of that network is a sort of assumption on which a large part of our daily life is based. Our diplomats rely upon it to discharge their duties. Our defense forces rely upon it in making their plans for national security. Businessmen rely upon it to increase trade and, therefore, the prosperity of the countries involved. And most important, the average American tourist is using it more and more as a way of becoming acquainted with the peoples of other countries.

Quite apart from the dollars he leaves behind him, it has been said that one tourist can be worth a dozen ambassadors in establishing solid relations between countries. That statement does not downgrade ambassadors one bit, but it does emphasize the good that can be done by ordinary people meeting one another person-to-person all over the world. Figures, to which I shall refer shortly, show that most of the world's international travel is done by Americans. That is fine, but it would seem a worthwhile objective of our foreign policy to encourage people of other countries to travel here and see how we live and what we are like at home.

In any event, many countries maintain a sturdy, vigorous airline system under their own flag. As a recent Senate report said in our own case, "The United States, as the leader of the Free World, has a duty both to itself and to others to maintain a strong international air transport system, and at reasonable cost to the taxpayers." And it is a fact that large segments of our international system are now costing the taxpayer nothing.

Today, the United States has leadership in world air transportation, and it is essential that we maintain it. Of course, we know we face a number of technical and traffic difficulties; but over the years we have shown the capacity to surmount them. We have developed and demonstrated a high degree of proficiency at such things as maintaining the necessary supporting resources abroad, selling tickets in dozens of currencies, and taking care of people, freight and mail over long distances and under many climates and conditions.

These technical and traffic problems, which are largely within our own control, we will either solve or not solve according to our own capabilities. But, on the whole, such problems have been so well mastered that by 1959 or 1960, we expect to be hauling large numbers of passengers from conti-

* Speech before the Aero Club of Washington, June 26, 1956.

nent to continent at speeds close to 600 miles an hour. And we expect to be hauling them at reasonable fares.

But if we have confidence in our ability to cope with the technical problems which we must continue to surmount, we regard with considerable wariness a set of problems of an entirely different nature and which are beyond our own control. Those problems grow out of the rules under which we as well as other international airlines are permitted to operate—not the technical rules, but the economic and political rules, some laid down by our own government, and some set forth by foreign governments. Inevitably, those rules and the administration of them will determine the future of international air transportation. So we have good reason to be concerned with them.

Today's rules are really an outgrowth of things that happened in 1944. In that year—before, during and after the Chicago Aviation Conference, at which some 52 nations were present—there took place a series of very thorough discussions, with U. S. Government and airline representatives both participating, about what the character of the world's future international air policy should be. It soon became apparent that the views of the United States, which even then intended to achieve leadership, were miles and miles apart from the views of most other countries.

Beyond the borders of the United States, most people took the view—ingrained by long habit—that international air transportation should be conducted without the rigors of competition and with maximum emphasis upon security for the airlines. The number of flights would be specifically restricted. Schedules would be shared. Traffic would be pooled. In brief, the United States was confronted with the sort of ideas which, if adopted would over-protect airlines and would put a damper on the development of a vigorous international air transportation system.

Development of Bermuda Agreement

Figuratively speaking negotiations fell apart in 1944, because the ideas of the future character of international air transport were so widely opposed to one another. At that juncture, the United Kingdom and the United States took both the leadership and the responsibility for evolving a workable arrangement under which international air services could be conducted. The agreement was worked out in the benign atmosphere of Bermuda, and in consequence came to be called the Bermuda Agreement.

It would not do here to attempt to explain the Bermuda Agreement, for such an explanation could easily become an exercise lasting several hours. But the basic principle adopted did provide airlines the essential opportunity to develop business and to expand their operations to accommodate the growing number of travelers. The basic principle is that the services provided by an international airline shall retain as their primary objectives the provision of capacity adequate to the traffic demands between the country of which that airline is a national and the countries of ultimate destination. Conversely, it was not contemplated that an international airline would devote itself primarily to serving traffic between two foreign points.

The Bermuda Agreement became the model for other agreements, and the principles it embodied found worldwide application. It is fair, I think, to suggest that the subsequent flowering of world air commerce was the result of the adoption of the Bermuda principles.

This is not to say that there have not been problems, because there have been. There have been many arduous negotiations in the course of putting the Bermuda principles into force. And there have been equally difficult negotiations over the administration of agreements after they have been adopted.

But despite international arguments—arguments among friends, let me emphasize—air services have been conducted with considerable success, and there are good prospects for even greater success in the future. However, we can still expect to be plagued with difficult negotiations over the institution of new agreements and the administration of old ones. Recent negotiations have indicated that there are future problems for the United States in at least three areas:

One is the introduction of foreign-flag airlines into markets where they cannot operate economically under the Bermuda principles, thus sowing the seeds of disagreement and weakening American-Flag as well as other foreign-flag airlines.

A second is the imposition of restrictions upon American-Flag airlines operating abroad on routes in which they have a primary legitimate interest under the Bermuda principles—and which are necessary in the national interest.

A third is the failure of foreign governments, and perhaps of the United States Government itself in some instances, to attach sufficient importance to the value of the American market during the course of negotiations.

This is not the forum in which to present case histories bearing on those three points—another discussion which could easily become an exercise lasting many hours. But it may be instructive to look briefly at what the American market means to all airlines engaged in international commerce.

The importance of the American market can be summed up, although not fully described, in a single statistic: In 1954 there were a total of 8 billion revenue passenger-miles flown in international air transportation and of that number 4 billion, or one-half of the world total, were between points in the United States and foreign points.

There are many other statistics which might be used to measure the value of the market the United States offers to foreign-flag airlines as compared with the value of the markets foreign governments can offer in return. It is enough here to note that more than half of the passengers carried by foreign-flag airlines into and out of the United States are U. S. citizens.

It is clear that foreign-flag airlines, to be strong, must have access to the American market. It is clear that they are getting it. And it may surprise you to learn that in some ways they have better access to it than do the American-Flag airlines, in terms of being able to sell a comprehensive service. Outbound from the United States, a foreign-flag airline's first port of call, except for fuel stops of minor traffic importance, is often its capital city, the source and center of its whole network, and its gateway to the world.

To get this picture, you might visualize an American-Flag airline and a foreign-flag airline as two trans-Atlantic pipelines. To stay in business, both pipelines depend on the traffic flowing from America. But you see the American-Flag airline as a single pipeline passing through a relatively limited number of cities and able to sell and carry traffic directly to those specific cities only. But you see the foreign-flag pipeline connecting in Europe with its own pipeline network which spiderwebs out to the most important points in Europe and, frequently, the world. The significance, of course, is that thus the foreign-flag pipeline can sell and deliver American traffic not just to its own country but can sell and deliver American traffic directly over its own network to a large part of Europe and, frequently, the world.

I am not implying, by the way, that restrictions contrary to the Bermuda principles should be imposed upon foreign-flag airlines because of the great value of the American market to them. The only suggestion is that it is

important to give proper weight to the great value of the American market during the course of negotiations.

Problems arising in all three of the areas I have mentioned—introduction of foreign-flag airlines into markets where they cannot operate economically under the Bermuda principles: improper restrictions upon American-Flag airlines operating abroad; and failure to attach the proper importance to the value of the American market during negotiations—problems arising in all three areas can gravely affect the future of our country's air transportation system abroad. Errors of policy, errors of negotiation and errors in the administration of agreements can all do great harm.

Debate Spotlights Fundamental Policy

As some members of this group present here today are acutely aware, the recent air agreement with the West German Federal Government touched off a vigorous debate before the Senate Interstate and Foreign Commerce Committee. Without regard to the rights or wrongs of that agreement, its deficiencies or its virtues, the debate turned the spotlight on important, fundamental aspects of our aviation policy.

It engaged the attention of an important Senate committee. It gave industry and government spokesmen the opportunity of expressing their views in that important forum. And, more importantly, it revealed, I believe, a lack of common understanding as between the Executive, the Congress and the airlines as to what our goals should be and what means we should employ to reach them.

The report of the Senate Commerce Committee is an important milestone in the matter our our international air transportation policy. Among other things it constitutes an invitation for us to re-examine what we are doing and why we are doing it. I believe there is sentiment sympathetic to such a re-examination within both the executive and legislative branches of our government, as well as within the airlines. And, to be sure, after a decade in which a great many changes have occurred, it would seem wise to re-examine our policy systematically and in detail, despite the fact that we think its results, on the whole, have been beneficial for us and for other countries.

What would such a re-examination disclose? Perhaps it might persuade us that some changes are required. But I have a notion that such a re-examination would convince us, as is suggested in the Senate report, that the Bermuda principles are still the best that are possible today, and that in the Bermuda type of agreement, properly negotiated and properly administered, we have the best available instrument for furthering the development of international air transportation.

If those conclusions should be the result of a re-examination, our time would not have been wasted. For we would have re-established a common understanding which the Executive, the Congress and the airlines all would share. In addition, we would have imbued everybody concerned with new determination to give consistent, vigorous support to the policies we believe to be the right ones.

As part of the re-examination, we should perhaps take a look at our government's machinery for negotiating and administering our foreign air policy. It is true that any foreign negotiation has the benefit of the participation of our highest civil aviation authority, the Civil Aeronautics Board. Even so, within the State Department—which in most cases, must take the lead in any negotiation—aviation seems to have been reduced to rank below that which it deserves—and receives, as a rule, from foreign governments. Perhaps as part of its contribution to preparing for the next decade of

international air transportation, the State Department might review the way in which it is organized to handle foreign air policy.

For example, does aviation receive the attention of the highest levels when it requires it? Is enough manpower being made available to those charged with aviation matters? Do they have sufficient resources to do their job right? Is there provision for continuity of service so that those charged with aviation are not reassigned to other jobs and their expertness in aviation thereby lost to the country?

And a question might be raised as to the composition of the negotiating parties, with a view to including airline experts on a consistent basis. Under the present situation, the American-Flag airlines, with their close and expert knowledge of the situation, may or may not be represented continuously in the U. S. delegation sitting at the conference table. Foreign delegations, by virtue of the relationship between most foreign governments and their airlines, in effect automatically include airline representation, since most foreign-flag airlines are wholly or partly owned by, or are the special wards of, their governments.

The unfortunate result of this arrangement is to make the foreign delegation the spokesman and negotiator for its airline, with the American delegation becoming a sort of mediator between American-Flag and foreign-flag interests.

The first postwar decade has been a fruitful one for the development of international air transportation. Profits have not been significant. But a world air transport system under many flags has flourished in terms of its ability to offer more and better service to more and more people.

The next decade can be even more fruitful, for it will see the introduction of jet airliners. But it will not be fruitful unless we re-establish a policy basis for our actual operations. It is time to get ready for the jet age.

THE DOLLAR AND THE AIRLINER*

BY STUART G. TIPTON

President, Air Transport Association of America

THIS YEAR we are witnessing a great debate on the subject of American airpower. Questions are being asked as to whether American military airpower is remaining, or can remain, the world's strongest—or whether the Red air fleet is about to surpass our total military airpower. As a layman, a civilian, I have no special information as to what this debate will have revealed at its conclusion. But I share with almost all Americans the conviction that the quality of our military airpower is one of the most important questions that Americans can debate in 1956.

When I use the term "military airpower," I am referring to the components of the United States Air Force and United States Naval Aviation. But this audience knows, perhaps better than any other possible audience in the country, that military and civil airpower are inseparable. You know that airpower begins on the ground—with the manufacturing industry; with supporting installations; and with the young men and women whose interest must be counted upon to sustain American airpower in the future. You know also that a scheduled air transport industry in being is an indispensable—*an indispensable*—part of total national airpower. If the United

* Speech at the Aviation Writers Association Dinner, Mark Hopkins Hotel, San Francisco, May 29, 1956.

States did not have a scheduled air transport industry today, we would be compelled to create it in the name of national defense.

With its 1,500 airliners and its nearly 120,000 employees, with its thousands of stockholders and with the financial institutions which have supported the industry and made possible its growth, the American-Flag system constitutes the most efficient, the most useful and the most competitive air transport system in the world.

The world includes, of course, Aeroflot, Russia's civil air fleet. Aeroflot's domestic services are already extensive, as is to be expected in a country of Russia's size. And Aeroflot today is displaying the unmistakable intention of penetrating the foreign field and establishing a comprehensive international network under the Red Flag. Moreover, I think it reasonable to foresee that Aeroflot's own network will be linked with the air systems of such countries as Czechoslovakia, Poland and other members of the Communist empire. It is reasonable also to foresee that Red China will strive to develop a first-rate airline system, linked to Russia's. So we can anticipate a wholly new force on the world scene, a powerful world-wide network of Communist airlines, assisting each other in the development of routes and services, the generation of traffic, and the creation of new and improved technologies.

Although we are proud of our record, we must acknowledge that the ability to build and operate a civil air fleet is most certainly not an American monopoly. For example, Aeroflot is already operating jet airliners. It is probable that the arrival of the Tu-104 at London International Airport excited more attention than it deserved. From all reports, the Tu-104 does not compare with the jet airliners which the American-Flag industry has undertaken to acquire and operate. But it would be foolish not to expect the Russians to develop a good long-range jet airliner, perhaps based on the Bison bomber, just as the Tu-104 appears to have been evolved from the twin-jet Badger bomber.

Thus, in addition to the continuing competition with the fine airline systems of the rest of the free world, the United States can expect to face the test of strength offered by a new and powerful rival. We in the air transport industry would not be discharging our full responsibilities if we failed to analyze that prospect and its implications.

Now, my thesis tonight is a very simple one. It is this: There need never be any debate on the subject to American civil airpower as represented by the scheduled airlines of the United States; there need never be any question as to whether American civil airpower is paramount and will remain paramount—unless our own Government somehow manages to undermine our own air transport system. This country can continue to have the greatest airline system in the world only if our own Government, which has life-and-death powers over the industry, recognizes the great public issues with which it is dealing—recognizes the disaster that can come from errors, the national benefits that can flow from sound policy.

This is not the time, if there ever was or will be a time, when the Government should be arrayed against the industry or the industry against the Government. Nor is this a time when the Government should be required to apologize for sympathetic or realistic consideration of the industry's problems. The airlines have too much to do, and great issues hang on their ability to do it.

The Civil Aeronautics Board and members of the industry have greatly exasperated one another from time to time, and we have every reason to believe that they will do so again. But, by and large, a record has been written in which the airlines, the Government and the country can take pride.

Service to the national defense, most of this group will recall, was demonstrated in World War II, when the industry had been reorganized for barely three years. And today, the scheduled airlines of the United States enable the country to maintain the largest Civil Reserve Air Fleet in the world, its planes and crews subject to call on 48-hours notice. This addition to the stand-by strength of the military air transport services ensures that our armed forces in any emergency will have the largest air transport fleet of all the world powers.

Statistics concerning service to our commerce, foreign and domestic, are so various and numerous that I shall not even attempt to recite them in detail. Perhaps it is enough to observe that compared to 1946, speeds of airliners have doubled, and the number of persons using air travel has more than tripled. Volume of available air service has more than quadrupled. And with all of this, the average fare level stands today just about where it was in 1938, despite such increases in costs as reflected in a rise of 235 per cent in airline wage levels and an increase of over 90 per cent in consumer's prices.

Service to the Postal Service is also provable through an array of statistics. Here is the one of which we are proudest. The Post Office Department, which did so much to get air transportation off the ground, today gets more than 5 cents of every 6-cent airmail stamp. For handling the mail we get less than 1 cent. In addition to the carriage of priority airmail, the industry and the Post Office Department are today conducting an experiment in moving first-class mail by air in order to expedite delivery. That experiment will expand because the public will demand it.

The record of the airlines is and must be subject to repeated scrutiny by the Government. A recent computation disclosed that in the last ten years the industry has undergone at least ten Congressional inquiries and five inquiries by the Executive Branch of the Government. This year, we are even now keeping our record consistent in the matter of undergoing investigations. A committee of Congress is already conducting an inquiry, and the Civil Aeronautics Board just the other day announced a general passenger fare investigation of the domestic trunklines. Nevertheless, we like the goldfish bowl we live in, because the people who look in like what they see.

It is important to note that the industry did not oppose the idea of a general passenger fare investigation—nor, of course, did the industry endorse it. The domestic trunklines have no reason to fear the outcome of such an investigation, for the outcome of an honest study can be nothing but constructive. However, the reason given by the Civil Aeronautics Board for starting the investigation was no good. The Board gave an alleged high level of airline profits as the reason for its concern. This caused some of us to fear that even our own Government—in fact, our own regulatory agency—may not be fully aware of the basic economic facts of our business. So I am going to take the opportunity tonight of previewing one or two of the facts which the investigation of the domestic trunklines will reveal.

Let me simplify the story at the outset. After a lot of lean years we finally made a profit. The first thing that happens is that the Government moves in and takes 52 per cent of it. Then we sit down and figure out how little of the remainder we can give our stockholders, and still maintain our credit. We give it to them, and then we take the rest and buy airplanes. When we get the airplanes we call the military department and contribute them to the Civil Reserve Air Fleet to be called up on 48-hours notice. Scheduled air transport is the biggest bargain the Government or the public ever had.

And there can be no quarrel with today's level of fares as compared with

the cost of other services or products. Air travel today is one of the country's best buys. In fact, the Board did not say airline rates are too high. What the Board said, in effect, was that regardless of the level of fares, airline profits were high. To arrive at such a conclusion, the Board employed a formula known as rate of return on investment.

Rate of return on investment has a traditional significance in some industries—whose economic characteristics are quite unlike scheduled air transport's. But the Board and everyone concerned with our business must recognize that rate of return on investment is not a useful way to determine whether airline profits are too high, too low, or exactly right. As a matter of fact, if the Board were to bind the airlines to this arbitrary, irrelevant formula with all the theoretical monkey business that goes with it, the airlines' financial prospects would be dim indeed. Neither the Board, nor the industry, nor anyone else should be hypnotized by a formula such as a rate of return on investment, or any other formula. That is the easy way. That makes it unnecessary to think. That makes a decision easy to defend because reliance can be placed on ancient principle. Instead, the Board must face up to the real question: How much money do the airlines need to do their job? The Board must answer that and then be prepared to support and defend the industry in getting that much money.

And over the next ten years the scheduled airlines are expected to spend some three billion dollars for new airliners and related equipment!

Actually, the level of a public utility's profits is not nearly as important as the disposition of them. Were they used to make solid contributions to the public service or to indulge in corporate riotous living? Listen to what the domestic trunklines did with their money during the last ten years.

Our studies show that if you add up trunkline revenues from all sources —earnings, sale of additional stock, borrowings, depreciation, property retirements and other amortizations—you come up, for the last ten years, with about one billion, seven hundred sixty million dollars. The analysis of how those funds were used discloses the startling fact that some 82 per cent of all funds available to the domestic airlines during the last ten years were ploughed back into new and better equipment. That 82 per cent represents one billion, four hundred forty-eight million dollars invested in better service. Meanwhile, some 91 million dollars were being paid out in dividends—about five per cent of all funds available to the industry. Incidentally, a large portion of those dividends was paid to preferred stockholders, which is to say that those payments were virtually mandatory from a credit standpoint.

How did the dividend pay-out of the domestic trunklines compare with other industries? I am informed by security analysts that a growth industry, such as scheduled air transport, ought to be paying out about 40 per cent of its net income, after taxes, in dividends. During the ten-year period beginning in 1946, dividends paid out by the domestic trunklines amounted to about 32 per cent of net profits after taxes. During the same period, the comparable figure for all U. S. corporations was 47 per cent of net profits after taxes.

During the past five-year period—the period in which, relatively speaking, the airlines began to show some indication of generating earnings—dividends paid out by the domestic trunklines amounted to about 28 per cent of net profits after taxes. The comparable figure for all U. S. corporations was nearly 54 per cent.

If the airlines were rolling in profits, that remarkable fact would be readily evident through a number of means. It would show up, for example, in the market price of the industry's securities by revealing the regard, if any, for its equities by investment sources.

A study of the last ten years shows that despite the strong growth characteristics of the airline group as manifested by an increase of 263 per cent in gross revenues, airline equities have increased but 25 per cent in price from 1946 through the first quarter of 1956. This has occurred in the face of one of the biggest booms in the country's history, as evidenced by the industrial stock average increasing some 166 per cent from 1946 through the 1956 first quarter. The railroad business, which has been losing freight business to the trucks and passenger business to the airlines, has shown an appreciation of almost 80 per cent in its securities. Some other growth industries have shown increases in the price of their equities of 239 per cent, in the case of chemicals; and 476 per cent, in the case of aluminum.

I am not saying the domestic trunklines lack financial respectability. They have it. And in view of the fact that they have it, how do we account for the investors' appraisal of the industry's equities? Among the reasons may well be the fact that in recent years the existence of Government regulation has created doubt rather than the confidence it should generate as to the industry's future.

I have said the reason the Board gave for investigating the passenger fares of the domestic trunklines was a wrong one. Perhaps what I have been saying adds up to a good reason for an investigation. Perhaps it is high time that the airlines came at the CAB with the powerful arguments which must convince the Board of the basic needs of an air transportation system and give the Board an opportunity to assume its grave responsibilities in helping to maintain American airpower.

And this thought brings me back to what I said at the outset. We have, in the airlines of the United States, an industry that has been consuming most of its own funds in order to provide better and expanded service. That's how it is that we are able to say today that our country has the world's most efficient, most useful and most competitive air transport system. For the future, the industry will follow a similar course. And remember this: The Russian taxpayer will have to pay for the Tu-104 and its successor airliners. The airlines of the United States, though they freely acknowledge the subsidy help they once received, propose for the most part to acquire the new jet equipment without aid from the taxpayer.

The American-Flag air transport industry recognizes its obligations and the necessity of continuously submitting its record to the Government and the American people for scrutiny. But I do suggest that on its part the Government also has some obligations. The Government must recognize that the air transport industry by its continuing achievements on behalf of both the national economy and the national defense has become a symbol of American progress, and the Government must see to it that those achievements are not checked.

INTERNATIONAL REVIEW

Compiled by, JULIAN G. GAZDIK, Secretary Legal Committee, International Air Transport Association in cooperation with DR. G. F. FITZGERALD and A. M. LESTER of the ICAO secretariat and MISS S. F. MACBRAYNE of the International Air Transport Association.

I. INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO)
- a. Report of Sub-committee on Hire, Charter and Interchange of Aircraft.
- b. Text of Multilateral Agreement on Commercial Rights of Non-Scheduled Air Services in Europe

II. INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)
- a. Helicopter Meeting: May 3rd-5th, 1956, San Remo, Italy
- b. Technical Conference: May 7th-19th, 1956, San Remo, Italy
- c. Traffic Conferences: May 27th-June 25th, 1956, Cannes, France.

III. INTERNATIONAL CHAMBER OF COMMERCE (ICC)
Meeting of the General Transport Commission, May 18th, 1956, Paris.

IV. RECENT CASES INVOLVING FOREIGN ELEMENT
- a. Chutter vs. K.L.M., Royal Dutch Airlines & Allied Aviation Service Corporation *compared with* Scarf vs. Allied Aviation Service Corporation & T.W.A.
- b. Preston and Another vs. Hunting Air Transport Ltd.
- c. Missirian vs. Air France
- d. Della Roma vs. Air France *et al.*

I. INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO)*

REPORT OF THE SUB-COMMITTEE ON THE HIRE, CHARTER AND INTERCHANGE OF AIRCRAFT

THE COUNCIL of ICAO decided, on 22 March 1955, that the Chairman of the Legal Committee should be asked to establish a sub-committee to make a preliminary examination of the problems posed by Recommendation No. 12 of the Strasbourg Conference on Co-ordination of Air Transport in Europe (April-May 1954).[1] That recommendation was to the effect that the Council of ICAO should consider the need for an international convention on the charter and hire of aircraft and the problems associated with its preparation.

The Sub-committee met at The Hague between 31 August and 2 September 1955.[2] During its study of the problems that might arise in connection with the hire and charter of aircraft, the Sub-committee considered that a special one arose under the Warsaw Convention. Therefore, it pre-

* At the time of compiling this material, the 10th Assembly of ICAO was still in session at Caracas, Venezuela.
Items of interest will accordingly be reported in the next issue of the Journal.

[1] This paper contains material formerly set out in LC/SC/CHA Working Draft No. 36.

[2] In attendance at the session were Mr. R. Golstein (Belgium), Mr. T. Cavalcanti (Brazil), Mr. T. F. Reis (Brazil), Mr. S. L. Portella de Aguiar (Brazil), Mr. Diaeddine Saleh (Egypt), Mr. X. de la Renaudière (France), Mr. A. Ambrosini (Italy), Mr. C. Gómez Jara (Spain), Major K. M. Beaumont (United Kingdom), Chairman and Mr. A. W. G. Kean (United Kingdom), Rapporteur. Mr. S. Iuul (Denmark) was unable to attend.

pared a special report on that problem. The Hague Conference, having considered this report, felt that the matter was of too great complexity to permit the insertion of provisions relating thereto in the Protocol to amend the Warsaw Convention. But it did consider that the matter was of considerable practical importance in view of the extent of charter and hire arrangements and required further study. Therefore, the Conference recommended that this subject should be further studied by the Organization.

The conclusion reached in the main report of the Sub-committee was that in certain respects there is a practical need for provisions to facilitate the charter, hire and interchange of aircraft and to clarify the legal position.

The Council, having considered the two reports of The Hague Subcommittee, Recommendation No. 12 of the Strasbourg Conference, the recommendation of The Hague Conference and the close relationship between the problem of charter and hire of aircraft and that of interchange of aircraft, decided, on 18 November 1955, that the subject of charter, hire and interchange of aircraft be included as one of the items on the current work program of the Legal Committee. It requested the Committee to take appropriate action to study the subject and to transmit to the Council any draft convention relating to this matter that the Committee considered ready for presentation to the States together with a report thereon, or any recommendations for action by Council that the Committee considered appropriate.

Meanwhile, the First Session of the European Civil Aviation Conference (November-December 1955) recommended that the Council of ICAO should arrange to include in the study of the hire and charter of aircraft particular reference to the legal problems that arise when the functions of the State of registry of an aircraft interchanged without crew are transferred to another State. On 13 March 1956, the Council requested the Chairman of the Legal Committee to ask the Sub-committee on Hire and Charter of Aircraft to include the aforementioned problems in its study.

The Sub-committee held eleven meetings at Caracas, Venezuela, between 19 June and 3 July 1956, with the following members and advisers in attendance at one or more meetings: Major K. M. Beaumont (United Kingdom), Chairman, Mr. A. W. G. Kean (United Kingdom), Rapporteur, Mr. R. Golstein (Belgium), Mr. P. A. T. De Smet (Belgium), Mr. M. Abou-Afia (Egypt), Mr. G. Rinck (Federal Republic of Germany), Mr. A. Garnault (France), Mr. A. Ambrosini (Italy), Mr. M. Zotta (Italy), Mr. J. H. Wanner (United States of America) and Miss H. A. Colclaser (United States of America). Present as observers were: Mr. R. Carmona (Venezuela) and Mr. J. C. Cooper (IATA). Others attending one or more meetings in an unofficial capacity were: Mr. A. P. Moura (Brazil), Mr. J. P. Houle (Canada), Mr. A. Kotaite (Lebanon), Mr. A. Francoz Rigalt (Mexico), Mr. S. W. L. De Villiers (Union of South Africa) and Mr. V. J. Delascio (Venezuela). Members unable to attend were: Mr. T. Cavalcanti (Brazil), Mr. S. Iuul (Denmark) and Mr. C. Gómez Jara (Spain).

The Sub-committee had before it at Caracas documentation setting forth the work on the hire and charter of aircraft done in the CITEJA and the work done on the hire, charter and interchange of aircraft at the conference on the Co-ordination of Air Transport in Europe (Strasbourg, April-May 1954) as well as at the European Civil Aviation Conference (Strasbourg, November-December 1955). Also before the Sub-committee was documentation containing information received from certain States, members of the ECAC, concerning problems raised by certain provisions of the Chicago Convention and its Annexes in connection with the interchange of aircraft and comments concerning the same question from the Air Navigation Bureau of ICAO. However, the full information requested by the Subcommittee at The Hague was not yet available.

Problems arising under the Warsaw Convention on the unification of Certain Rules Relating to International Carriage by Air in the case of a charter with crew.

The Sub-committee acted on the assumption that The Hague Protocol will come into force, and references in this report to the Warsaw Convention are to that Convention as amended by The Hague Protocol.

The Sub-committee considers that no problem arises under the Warsaw Convention when an aircraft is chartered or hired without a crew, but that difficult problems may arise when an aircraft, or any part of the space in an aircraft, is chartered or hired with a crew. These problems require to be solved in order to facilitate the chartering and hiring of aircraft.

The problems mentioned in the preceding paragraph may arise because the Warsaw Convention, in its original form and as amended by The Hague Protocol, leaves uncertain:

(a) the respective liabilities of the owner[3] and the charterer or hirer under the Convention, in respect to passengers, baggage and cargo;
(b) whether the provisions of the Convention which refer to "the carrier," the owner or the charterer or hirer is the person meant.

The Sub-committee considers that it is advantageous to provide a solution for (b), as well as for (a), because the answer to (b) will affect the quantum or existence of liability under the Convention. To take only one example, if under Article 26, the plaintiff is required to complain to "the carrier" within a certain time, it is necessary to him to know to which of the parties the complaint must be made, if he is not to be deprived of his right to damages.

The Sub-committee in seeking solutions for the above-mentioned problems, took into account the fact that in some Contracting States—

(a) the owner of the aircraft can be sued for the death of or injury to a passenger, and loss of or damage to baggage or cargo notwithstanding that the owner is not a party to the contract of carriage;
(b) a party who agrees to carry is not permitted to contract out of his liability for negligence;
(c) the passenger is not necessarily a party to any contract of carriage.

The Sub-committee accordingly agreed that—

(i) the liability of the charterer or hirer, and of the owner, ought to be governed by the Convention;
(ii) the owner on the one hand and the charterer or hirer on the other ought to be jointly and severally liable under the Convention. It was agreed, however, that the one party, his servants or agents, should not be affected by the conduct of the other party, his servants or agents, for the purposes of Articles 25 and 25A. The Sub-committee took the view that joint and several liability would not necessarily result in an additional expense by way of double insurance, and that the parties liable should be able to make satisfactory contractual arrangements to regulate their liabilities *inter se*.

The Sub-committee considered four different solutions to the problems arising under the Warsaw Convention in the case of the hire and charter of aircraft. These are appended to this report as Solutions A, B, C and D respectively. Solution A is that propounded by the Sub-committee at The Hague. Solutions A and B do not involve the definition of "the carrier," whereas Solutions C and D attempt a definition. All of the solutions provide for joint and several liability of the owner and the charterer or hirer.

[3] Owner includes any other person entitled to charter out or hire out an aircraft with crew.

The principle underlying each solution is set forth below.

Solution A provides only for joint and several liability and does not attempt to resolve the numerous points which, under various Articles of the Convention (see, for example, Articles 3(2), 4(2), 9 and 26, depend for their solution on who is the carrier, the owner or the charterer or hirer.

Solution B also provides for joint and several liability but, in addition, deals with the other questions which arise as to whether "the carrier" means the owner or the charterer or hirer throughout the Convention. It seeks to provide a specific answer to this question in relation to each Article in which the question may arise.

Solution C, in addition to providing for joint and several liability, starts from the premise that the person who performs the carriage is "the carrier" for the purposes of the Convention, but recognizes that this premise requires to be modified in respect to certain Articles. This approach proceeds from the fact that in some States an action under the Warsaw Convention usually takes the form of an action in tort against the owner of the aircraft, whether or not the charterer or hirer can also be sued in contract.

Solution D, in addition to providing for joint and several liability, starts from the premise that the person entering into the contract under which the particular passenger, baggage or cargo is carried is "the carrier" for the purposes of the Convention. This solution proceeds from the fact that in some States an action under the Convention is regarded as primarily based on a contract of carriage.

Problems arising under the Rome Convention on Damage Caused by Foreign Aircraft to Third Parties on the Surface, in the case of the hire, charter and interchange of aircraft.

The problem which arises under the Rome Convention in the case of the hire, charter and interchange of aircraft, has been illustrated by the following example given by Dean Chauveau:

> "SABENA is operating a flight from Brussels to Paris with an aircraft belonging to Air France. While flying over a French city, the aircraft crashes into the Gas Works, which explodes and lays waste a whole district. Even after the Rome Convention has come into force, SABENA will not be able to avail itself of its provisions, since the Convention (Article 23) applies to damage arising on the territory of one contracting State and caused by an aircraft registered in the territory of another contracting State."

If it is considered desirable to find an international solution for this question, a Protocol to the Rome Convention could provide that where the aircraft causing the damage is registered in the State in which the damage is caused, it shall, if operated by a national of another contracting State, be deemed for the purposes of the Rome Convention to be registered in a foreign State. However, it is open to any State to amend its domestic law so as to confer upon foreign operators of aircraft registered in that State the benefits of the Rome Convention.

Problems arising under the Chicago Convention in the case of the hire, charter and interchange of aircraft.

The Sub-committee took cognizance of the following definition of interchange accepted by the European Civil Aviation Conference:

> "The word 'interchangeability' should be taken to refer to the ability of an airline operating internationally under a governmental agreement or authorization, to use other aircraft belonging to a foreign airline and registered in a foreign State, with or without the aircraft's crew."

In the light of information at present available it appears that, in cases limited to aircraft registered in contracting States under the Chicago Con-

vention, no practical difficulties may exist under the Convention in connection with interchange of aircraft. It is agreed that interchange with crew raises no problem as regards the application of the Chicago Convention. It remains to be considered whether it is otherwise in the case of interchange without crew.

Article 12 of the Convention requires, among other things, compliance with the rules of the places overflown. The flying personnel, whatever its nationality, receives the necessary instructions and information in order that it may be able to comply with these rules.

A transfer of registry or an amendment of the Convention to provide for dual registration is not indispensable for the regulation of the problems arising under Articles 32, 31 and 30(b):

—as regards Article 32 the issue or validation of the licenses of operating crew by the State of registry of the aircraft permits in all cases compliance with the provisions of that Article. In addition, it is possible to conceive that a State may authorize another State to validate the licenses in its name without contravening the Article;

—as regards Article 31 (certificates of airworthiness), the solution for the problem is the same;

—as regards Article 30(b) which requires that the personnel using radio transmitting apparatus be provided with licenses issued by the State of registry, an examination should be made, at the same time, of Article 24 of the Radio Regulations annexed to the International Telecommunications Convention of Atlantic City, 1947, which provide that "the service of every . . . aircraft . . . radiotelephone station must be performed by an operator holding a certificate issued or *recognized* by the government to which the station is subject." This possibility of "recognition" permits the solution of the problem that Article 30(b) of the Chicago Convention seems to raise. In fact, the Atantic City Convention is later in time than the Chicago Convention and the two Conventions are in force among the same States.

The Chicago Convention provides in Article 17 and 20 that registration confers nationality and that aircraft should bear the marks of such nationality. However, in the case of aircraft registered in Contracting States, Articles 5 and 6 of the Convention do not link the grant of permissions and authorizations for air services to the nationality of aircraft used by the carriers.

Article 24 of the Convention concerning customs duty raises no problem in regard to international carriage. The special problems which might arise in the case of routes within a State may be solved by agreements among the States concerned and by domestic provisions.

Article 26 of the Convention on the investigation of accidents provides that the State of Registry has the possibility of appointing observers. This provision does not prevent that State from appointing among the observers representatives of the State of nationality of the crew.

Any problems that might be raised by the application of Article 27 of the Convention concerning exemption from seizure on patent claims can be solved by prior agreement among the States concerned.

Nothwithstanding the foregoing, experience or further information may show that it may be necessary to amend the Chicago Convention to provide for the temporary transfer of the registry of the interchanged aircraft, so that it will coincide with the nationality of the airline to which the aircraft is interchanged. A proposal (appearing in Appendx "X") which might provide machinery for that purpose was presented to the Sub-committee which did not consider it necessary to study the proposal at this stage.

Problems relating to the status of interchanged aircraft may also arise.

The Sub-committee recognizes that, in setting forth the above considerations, based on a definition which relates to interchange between airlines, it has not covered matters which relate to charter or hire where an airline is not involved or where an aircraft does not belong to an airline. Therefore, subsequent study of this subject by the Sub-committee will need to expand the field of application of the above considerations.

General

Certain of the opinions expressed in this report were not accepted by all the members present.

SOLUTION A

ADDITION TO WARSAW CONVENTION AS AMENDED

Subject to the provisions of Article 30, when the air carriage is performed by a person other than the one in whose name the agreement to carry was concluded, each of such persons shall be jointly and severally liable as a carrier in accordance with the provisions of this Convention. Nevertheless, if only one of such persons is liable under Article 25, the excess above the limits comprised in Article 22 shall be recoverable only from that person.

SOLUTION B

CHAPTER IV—PROVISIONS RELATING TO AIR CARRIAGE PERFORMED BY A THIRD PERSON

Article 31A

If the carriage is performed by a person other than the one in whose name the agreement to carry was concluded with or on behalf of a passenger or consignor,

(a) the consent to embarkation given under Article 3, para. (2), by the person performing the carriage, his taking charge of baggage under Article 4, para. (2), his accepting cargo under Article 9, or the checking by him of statements under Article 11, para. (2), shall have the same effect as the consent, taking charge, accepting or checking respectively of the person in whose name the agreement was concluded;

(b) the consignor may exercise his right of disposition under Article 12, para. (1), by a declaration to the person performing the carriage or to the person in whose name the agreement was concluded, the liability under Article 12, para. (3), falling on the person to whom a declaration was made; the consignee may address his request under Article 13, para. (1), to either person;

(c) the person performing the carriage and the person in whose name the agreement was concluded shall be jointly and severally liable for any damage within the provisions of Articles 17 and 30; the aggregate of the amounts recoverable from such persons shall not exceed the limits of liability under Article 22; if, however, one of such persons is liable under Article 25, the excess above the limits comprised in Article 22 shall be recoverable from that person alone;

(d) the defense under Article 20 may be invoked by either person provided that both the person in whose name the agreement was concluded and the person who performed the carriage establish the proof required by Article 20; the defense under Article 21 and the limitation under Article 22, para. (4), however, are avialable to both persons regardless as to which of them proves the contributory

negligence under Article 21 or makes the offer under Article 22, para. (4);

(e) any complaint under Article 26, para. (2) may be made to the person in whose name the agreement was concluded or to the person who performed the carriage;

(f) a joint action for damages against the person in whose name the agreement was concluded and the person who performed the carriage may be brought before any court having jurisdiction, under Article 28, para. (1), over either of them.

SOLUTION C

ADDITIONS TO WARSAW CONVENTION AS AMENDED

Article I

In this Convention "the carrier" means the person performing the carriage by air, and "carriage by air" includes

(a) the embarkation and disembarkation of a passenger in an aircraft and the carriage of a passenger in an aircraft on the ground, whether or not the aircraft is in motion;

(b) the taking charge of cargo and registered baggage:

(i) on an aerodrome, by a person intending to carry or who has carried, the cargo or baggage in an aircraft;

(ii) in any place whatsoever, by a person who has carried the cargo or baggage in an aircraft which has landed outside an aerodrome.

Paragraph (2) of Article 18 shall be deleted.

Article II

Any notice which, under the Convention, may be or is required to be given to the carrier may be given instead to the person who concludes the contract of carriage, and if that person is a different person from the carrier he shall be liable to the person giving the notice for the consequences of any failure on his part to transmit the notice promptly to the carrier.

The person who concludes the contract of carriage may exercise the rights and assume the obligations of the carrier contemplated by Article 5, 6 and 7, and if he does so he shall be deemed to have done so on behalf of the carrier.

Subject to the provisions of Article 30, when a contract of carriage is concluded by a person other than the person who is considered to be the carrier pursuant to this Convention, each of such persons shall be jointly and severally liable as a carrier in accordance with the provisions of this Convention. The aggregate of the amounts recoverable from such persons shall not exceed the limits in Article 22. Nevertheless, if only one of such persons is liable under Article 25, the excess above the limits comprised in Article 22 shall be recoverable only from that person.

SOLUTION D

ADDITION TO WARSAW CONVENTION AS AMENDED

After Article 30 of the Convention, the following article shall be inserted:

Article 30A

1. "In this Convention the carrier is the party to the contract of carriage (a) of a passenger as stated in Article 3, or (b) of the registered baggage of a passenger as stated in Article 4, or (c) of the cargo of a consignor as stated in Article 11(1).

2. "Subject to the provisions of Article 30, when the air carriage is performed by a person other than the carrier as above defined,

through an arrangement with such carrier, the carrier and such other person shall each be liable jointly and severally as a carrier under the provisions of Chapter III of the Convention, provided, that the aggregate of the amounts recoverable from the carrier and such other person shall not exceed the limits recoverable from the carrier under Article 22, except that, if either the carrier or such other person is liable under Article 25, the excess above the limits under Article 22 shall be recoverable only from the person so liable."

APPENDIX "X"

ADDITION TO THE CHICAGO CONVENTION

Notwithstanding the provisions of Article 18, if an aircraft registered apart from this Article in a contracting State (hereinafter called "the first State") is let or sub-let by demise to a person entitled to register an aircraft in another contracting State (hereinafter called "the second State") each of such states may, at its discretion, enter the aircraft for the duration of the demise upon a register of demised aircraft maintained by it. An entry shall not be valid for the purposes of this Article unless it appears in the registers of both such States, and unless the particulars entered in compliance with paragraph (2) in the one register are the same as those so entered in the other.

Entries in the registers of demised aircraft shall be marked "charter" or "interchange" and shall indicate by date and time the duration of the demise, and the name and nationality of the person to whom the aircraft is demised. Entries marked "charter" shall have effect for the period so indicated. Entries marked "interchange" shall only have effect within the said period and in relation to the periods of time, or to the particular flights, specified in an interchange notice sent, by or on behalf of the person named in the register as the person to whom the aircraft has been demised, to the respective competent authorities of the first State and the second State or to any person or body nominated by those States for the purpose.

When entries in the registers of demised aircraft are in effect in relation to an aircraft, the aircraft shall, for the purposes of this Convention (except Article 20), be deemed to be registered in the second State and not in the first State: provided that—

(i) if the entry is marked "interchange," the responsibility for the airworthiness of the aircraft and for the licensing of any radio equipment in the aircraft shall remain that of the first State;

(ii) both States shall accord the benefits of Article 24 (Customs Duty) and Article 27 (Exemption from seizure on patent claims), as if the aircraft were registered in another contracting State;

(iii) the aircraft shall be deemed to be registered in both States for the purposes of Article 26 (Investigation of accidents);

(iv) nothing in this Article shall affect the nationality of the aircraft for the purposes of title, mortgages and other rights in aircraft.

Articles 19 and 21 of this Convention shall apply to registration made under this Article.

Registration made under this Article may at any time be cancelled by the State maintaining the register.

Consequential amendment to Article 12

Delete "carrying its nationality mark" and substitute "of that State."

MULTILATERAL AGREEMENT ON COMMERCIAL RIGHTS OF NON-SCHEDULED AIR SERVICES IN EUROPE[1]

THE UNDERSIGNED GOVERNMENTS,

CONSIDERING that it is the policy of each of the States parties to the Agreement that aircraft engaged in non-scheduled commercial flights within Europe which do not harm their scheduled services may be freely admitted to their territories for the purpose of taking on or discharging traffic.

CONSIDERING that the treatment provided by the provisions of the first paragraph of Article 5 of the Convention on International Civil Aviation drawn up at Chicago on 7 December 1944 (hereinafter called "the Convention")—which applies only to the international movements of private and commercial aircraft engaged in non-scheduled operations on flights into or in transit non-stop across the territories of the States parties to that Contion and to stops therein for non-traffic purposes—is satisfactory, and

DESIRING to arrive at further agreement as to the right of their respective commercial aircraft to take on and discharge passengers, cargo or mail on international flights for remuneration or hire on other than international scheduled services, as provided in the second paragraph of Article 5 of the Convention,

HAVE CONCLUDED this Agreement to that end.

Article I

This Agreement applies to any civil aircraft

(a) registered in a State member of the European Civil Aviation Conference, and

(b) operated by a national of one of the Contracting States duly authorized by the competent national authority of that State,

when engaged in international flights for remuneration or hire, on other than scheduled international air services, in the territories covered by this Agreement as provided in Article XI.

Article II

1. The Contracting States agree to admit the aircraft referred to in Article I of this Agreement freely to their respective territories for the purpose of taking on or discharging traffic without the imposition of the "regulations, conditions or limitations" provided for in the second paragraph of Article 5 of the Convention, where such aircraft are engaged in:

(a) flights for the purpose of meeting humanitarian or emergency needs;

(b) taxi-class passenger flights of occasional character on request, provided that the aircraft does not have a seating capacity of more than six passengers and provided that the destination is chosen by the hirer or hirers and no part of the capacity of the aircraft is resold to the public;

(c) flights on which the entire space is hired by a single person (individual, firm, corporation or institution) for the carriage of his or its staff or merchandise, provided that no part of such space is resold;

(d) single flights, no operator or group of operators being entitled under this sub-paragraph to more than one flight per month between the same two traffic centers for all aircraft available to him.

[1] ICAO Doc. 7695. Opened for signature on April 30, 1956 at Paris.

2. The same treatment shall be accorded to aircraft engaged in either of the following activities:

(a) the transport of freight exclusively;

(b) the transport of passengers between regions which have no reasonably direct connection by scheduled air services;

provided that any Contracting State may require the abandonment of the activities specified in this paragraph if it deems that these are harmful to the interests of its scheduled air services operating in the territories to which this Agreement applies; any Contracting State may require full information as to the nature and extent of any such activities that have been or are being conducted; and

further provided that, in respect of the activity referred to in sub-paragraph (b) of this paragraph, any Contracting State may determine freely the extent of the regions (including the airport or airports comprised), may modify such determination at any time, and may determine whether such regions have reasonably direct connections by scheduled air services.

Article III

The Contracting States further agree that in cases, other than those covered by Article II, where they require compliance with regulations, conditions or limitations for the non-scheduled flights referred to in the second paragraph of Article 5 of the Convention, the terms of such regulations, conditions or limitations will be laid down by each Contracting State in published regulations, which shall indicate:

(a) the time by which the required information (with a request for prior permission if one is required) must be submitted; this shall not be more than two full business days in the case of a single flight or of a series of not more than four flights; longer periods may be specified for more extensive series of flights;

(b) the aviation authority of the Contracting State to which such information (with the request if one is required) may be made direct, without passing through diplomatic channels;

(c) the information to be furnished, which, in the case of permission for a single flight or of a series of not more than four flights, shall not exceed:

1. name of operating company;

2. type of aircraft and registration marks;

3. date and estimated time of arrival at and departure from the territory of the Contracting State;

4. the itinerary of the aircraft;

5. the purpose of the flight, the number of passengers and the nature and amount of freight to be taken on or put down.

Article IV

1. If any dispute arises between Contracting States relating to the interpretation or application of the present Agreement, they shall in the first place endeavor to settle it by negotiation between themselves.

2. (a) If they fail to reach a settlement they may agree to refer the dispute for decision to an arbitral tribunal or arbitrator.

(b) If they do not agree on a settlement by arbitration within one month after one State has informed the other State of its intention to appeal to such an arbitral authority, or if they cannot within an additional three months after having agreed to refer the dispute to arbitration reach agreement as to the composition

of the arbitral tribunal or the person of the arbitrator, any Contracting State concerned may refer the dispute to the Council of the International Civil Aviation Organization for decision: No member of the Council shall vote in the consideration by the Council of any dispute to which it is a party. If said Council declares itself unwilling to entertain the dispute, any Contracting State concerned may refer it to the International Court of Justice.

3. The Contracting States undertake to comply with any decision given under paragraph (2) of this Article.

4. If and so long as any Contracting State fails to comply with a decision given under paragraph (2) of this Article, the other Contracting States may limit, withhold or revoke any rights granted to it by vitrue of the present Agreement.

Article V

1. This Agreement shall be open to signature by States members of the European Civil Aviation Conference.

2. It shall be subject to ratification by the signatory States.

3. The instruments of ratification shall be deposited with the International Civil Aviation Organization.

Article VI

1. As soon as two of the signatory States have deposited their instruments of ratification of this Agreement, it shall enter into force between them three months after the date of the deposit of the second instrument of ratification. It shall enter into force, for each State which deposits its instrument of ratification after that date, three months after the deposit of such instrument of ratification.

2. As soon as this Agreement enters into force it shall be registered with the United Nations by the Secretary General of the International Civil Aviation Organization.

Article VII

1. This Agreement shall remain open for signature for six months after it has entered into force. Thereafter, it shall be open for adherence by any non-signatory State member of the European Civil Aviation Conference.

2. The adherence of any State shall be effected by the deposit of an instrument of adherence with the International Civil Aviation Organization and shall take effect three months after the date of the deposit.

Article VIII

1. Any Contracting State may denounce this Agreement, by notification of denunciation to the President of the European Civil Aviation Conference and to the International Civil Aviation Organization.

2. Denunciation shall take effect six months after the date of receipt by the International Civil Aviation Organization of the notification of the denunciation.

Article IX

1. The Secretary General of the International Civil Aviation Organization shall give notice to the President and all State members of the European Civil Aviation Conference:

(a) of the deposit of any instrument of ratification or adherence and the date thereof, within thirty days from the date of deposit, and

(b) of the receipt of any denunciation and the date thereof, within thirty days from the date of the receipt.

2. The Secretary General of the International Civil Aviation Organization shall also notify the President and the States members of the European Civil Aviation Conference of the date on which the Agreement will enter into force in accordance with paragraph (1) of Article VI.

Article X

1. Not less than twenty-five percent (25%) of the Contracting States shall be entitled, by request addressed to the International Civil Aviation Organization given not earlier than twelve (12) months after the entry into force of this Agreement, to call for a meeting of Contracting States in order to consider any amendments which it may be proposed to make to the Agreement. Such meeting shall be convened by the International Civil Aviation Organization, in consultation with the President of the European Civil Aviation Conference, on not less than three months' notice to the Contracting States.

2. Any proposed amendment to the Agreement must be approved at the meeting aforesaid by a majority of all the Contracting States, two-thirds of the Contracting States being necessary to constitute a quorum.

3. The amendment shall enter into force in respect of States which have ratified such amendment when it has been ratified by the number of Contracting States specified by the meeting aforesaid, and at the time specified by said meeting.

Article XI

This Agreement shall apply to all the metropolitan territories of the Contracting States, with the exception of outlying islands in the Atlantic Ocean and islands with semi-independent status in respect of which any Contracting State, at the time of the deposit of its instrument of ratification or adherence, may declare that its acceptance of this Agreement does not apply.

IN WITNESS WHEREOF, the undersigned, being duly authorized thereto, have affixed their signatures on behalf of their respective Governments.

DONE at Paris, on the thirtieth day of the month of April of the year one thousand nine hundred and fifty-six, in duplicate in three texts, in the English, French and Spanish languages, each of which shall be of equal authenticity. This Agreement shall be deposited with the International Civil Aviation Organization which shall send certified copies thereof to all its Member States.

Austria, Belgium, Denmark, France, Federal Republic of Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom.

II. INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)

HELICOPTER MEETING MAY 1956: SAN REMO, ITALY

A clearer outline of what helicopter operators want and what manufacturers can provide in order to give the world what is known as helicopter bus service at the earliest feasible moment has emerged from an international meeting of airlines, manufacturers, governments and other interested agencies at San Remo, Italy.

Passenger acceptance of the helicopter is an established fact and provides an incentive for manufacturers, administrations and operators to

intensify their efforts to produce, certify and operate safe, economic helicopters to meet the needs of the public.

Operators indicated requirements for two types of multi-engined transport helicopters—a 25 passenger machine and one other for about 40 to 50 passengers.

The smaller aircraft should have a cruising speed of 100-125 miles per hour for metropolitan operations (in and around cities) and 150 miles per hour for inter-city routes. The range of such an aircraft should be at least 100 miles, with normal fuel reserves; and direct operating cost should not exceed 10 cents per available seat mile.

Operators asked for a 40-50 passenger helicopter largely for inter-city operations, with a cruising speed of 150 miles per hour; a range of 200 miles, including normal fuel reserves; and a direct operating cost per available seat mile of not more than 6-7 cents.

The operators emphasized that the performance and handling characteristics of these aircraft must be such as to permit safe economic operation into and out of take-off and landing areas 200 ft. by 400 ft. in size, located in city centers.

On the subject of city center operations, manufacturers must make every possible effort to minimize noise—a fact of which the manufacturers claimed full cognizance.

The manufacturers at San Remo were optimistic about their abilities to produce helicopters that would meet all of the operators' requirements; 25-passenger machines of the type specified would be available in three to five years. Larger aircraft of the 40-50 passenger category are in current development and could be made available about five years after a decision was taken to go ahead with production. Such a decision could only be taken on the basis of potential volume production. On this point the operators were quite certain that there would be no market shortage if the right aircraft were produced; and a potential market for at least 200 such aircraft was confidently predicted for the U. S. alone.

Another point emphasized by the meeting was the requirement for adequate heliport facilities, particularly in large metropolitan areas. Specific guidance to city planners was agreed with respect to obstruction clearance profiles required in addition to the 200 ft. by 400 ft. take-off and landing area mentioned above. Responsible city administrations must make provision in their current planning for future heliport sites and adopt suitable zoning laws to protect approach paths to the heliport.

On the performance side, operators were gratified to hear from certain manufacturers that economic multi-engined transport helicopters capable of hovering with one engine inoperative with full payload would be made available in three to five years and felt that this potential opens up a whole new horizon of operating techniques.

It was emphasized that neither detailed regulations for operation or certification should be imposed on future multi-engined helicopters until sufficient operating experience had been gained on such aircraft.

On the subject of air traffic control it was agreed that the present international regulations governing VFR (Visual Flight Rules) criteria and the minimum height at which aircraft can be flown need not be revised at this time to cater to helicopters. However, governments should not impose regulations which would restrict the flexibility of helicopter operations; they should rather take advantage of applying the dispensation for lower minima permitted by the current international regulations relevant to VFR criteria and minimum height rules.

Future helicopter operations should be considered in all advance air traffic control planning. Such plans should be based on the concept of segre-

gating helicopter and fixed-wing operations to the maximum extent possible. This could probably best be achieved by the provision of special helicopter airways.

Also agreed in principle were requirements for accuracy of helicopter and navigational aids developed by an IATA helicopter meeting at Brussels last year. In general terms, these call for the following:

—In the single en-route flight track case, the ability to fly safely a nominal track which clears obstacles by not less than 1.25 nautical miles laterally.

—In the multiple en-route flight track case, the ability to fly safely parallel tracks separated from each other by not less than 4,500 ft. and which clear obstacles by not less than 2,250 ft. laterally.

—In the terminal area, the ability to fly safely parallel tracks separated from each other by not less than 1,500 ft., and which clear obstacles by not less than 750 ft. laterally.

It appeared that one navigational aid of the area coverage type was basically capable of meeting these somewhat exacting requirements and that flight trials had tended to confirm this point.

It might be noted that airborne aircraft based on inertial or Doppler principles, which are currently under development, may have applications to helicopter use. Such aids are inherently independent of ground cooperation stations, employing, in the case of inertial devices a precise measurement of all accelerations encountered by aircraft, and hence its progress in space. While in the case of the Doppler type, the well-known frequency shift phenomenon, which is apparent, *e.g.* in the train whistle when it passes that speed, is employed by measurement of the change in radio frequency on a ground reflected radar signal.

Trials have indicated the practicability of using the same aircraft coverage type aid for instrument approach purposes. This was recognized to be important when considering the many different heliports which are likely to exist in a given area, and the cost of equipping them separately with an approach airway. It was, however, agreed that for maximum regularity of operation a specialized aid including a glide path would probably be required. Ground radar, it was reported, had been tried and could be used subject to suitable action being taken to overcome the problem of permanent echoes from buildings and other obstructions. A ground-based Doppler system under current development might have application to this problem.

On the subject of communications, it was noted that there were certain difficulties associated with UHF and VHF systems because of their "line of sight" limitations. These could be overcome in some cases by suitable siting and additional ground stations—but only at some cost both in money and operational complexity.

Both research establishments and manufacturers should thoroughly investigate the problem of providing a reliable means of communication which would not be subject to "line of sight" restrictions and which would require a minimum of frequency changes by the pilot.

Similar objections as apply to the use of anti-collision devices of the P.P.I. (plan position indicator) radar type in aeroplanes were held to apply to helicopters but it was noted that work was proceeding on a different type of device utilizing Doppler principles and that this development looked promising.

TECHNICAL CONFERENCE
MAY 1956—SAN REMO, ITALY

The ninth International Air Transport Association Technical Conference was held between May 7th-19th, 1956. It was stated that only joint effort by the world's airlines, air forces and civil administrations could solve the

foreseeable problems of traffic in the air during the 1960s, once the large jet planes were flying.

The IATA Conference also indicated the lines along which these traffic problems must be attacked and announced particularly good news for airport operators. The Conference estimated that the new jet and turboprop aircraft would not require runways any wider than the present international standard.

Taking part in the sessions were delegates of IATA member airlines, other international organizations, manufacturers, air forces and research establishments of countries from Czechoslovakia to Japan and from Finland to South Africa.

The Conference found that while the basic functions of air traffic control would probably remain the same when high speed turbine-powered aircraft came into the traffic pattern in large numbers about five years from now, actual handling of this increased jet age traffic might depend upon forms of control or coordination appreciably different from those we know today.

The search for the proper air traffic control system could not be based on attempts to revise or expand devices now used or known, but must start with a definition of what it would have to do and proceed to the planning of new methods and devices.

The Conference gave air traffic control priority discussion, for two urgent reasons: 1) it would have a determining effect on whether the $2,000,000,000 worth of jet and turbo-prop aircraft now on order could be operated at their optimum efficiency, so that their fares might be cut in order to attract the greatly increased traffic needed to fill them; and 2) the airlines were warned at San Remo by military spokesmen that the extensive facilities of air forces, which presently fill many gaps in traffic control, were always subject to redeployment and could not be depended upon.

The Conference discussions indicated that these might be some of the essentials required to keep a greatly increased number of aircraft moving safely at higher speeds through the air and into their terminals at their most efficient speeds: instantaneous automatic communications between air and ground; traffic control exercised over whole areas, rather than by routes; electronic systems to air controllers in keeping track of aircraft movements; cockpit instruments which will give the pilot a clear visual idea of his place in the pattern; and self-contained navigation aids independent of ground stations, similar to those used in guided missiles, as supplementary aids.

The Conference also voted certain recommendations for practical improvements in present air traffic control arrangements with the normal increase in traffic expected during the next five years. These included regulation by control towers of all traffic, and not scheduled traffic alone, moving in congested areas, even in good weather; development of altimeters capable of providing accurate vertical separation measuremnts at higher altitudes; use of secondary radar systems; and planning with air forces for joint, rather than exclusive use of airspace.

The Conference also warned that increasing aircraft speeds were making it impossible to contain air traffic control zones strictly within national boundaries and that these areas must in future be related to international route organization and not to political frontiers. It is understood that, in Europe particularly, aircraft radioing for permission to enter some of these zones are actually through them before approval is signalled back.

As regards runways for jets, the Conference agreed that runways and extensions 150 ft. wide would be operationally acceptable for the new aircraft if equipped with stabilized shoulders, with some exceptions in special cases of frequent high cross winds, high snow banks, etc. (The international standard runway width is now 200 ft.)

Fixed servicing installation on airport aprons to eliminate congestion of tank trucks, portable generators and like equipment by which aircraft presently get fuel, electrical power, telephone, water and lighting on the ground was also recommended by the Conference. Fixed fuel service was considered particularly vital.

In an exchange of views on aircraft inspection for structural fatigue, it was stated that untrasonics, radiography and even radioactive isotopes may become part of the routine process of future airline maintenance.

The Conference also concluded that more efficient use could be made of the limited number of frequencies available for air-ground communications by suppressing redundant "talk" between pilots and ground stations. It endorsed proposals for simplified message construction and communications practices, including abbreviated weather observations from the ground, and routine in flight weather reports by selected aircraft over a route, rather than by all of them.

The Conference reported that an examination of airborne weather radar now in use by some airlines indicated that it offered substantial advantages, both in giving passengers more comfort and reducing some of the cockpit workload during storms.

TRAFFIC CONFERENCES
MAY 27th-JUNE 25th, 1956: CANNES, FRANCE

As a result of discussion, and subject to the approval of all governments concerned, agreement was reached between the airlines operating over the *North Atlantic* to reduce Tourist fares about 20 per cent; with a special Excursion fare commencing in October 1956; to cut First Class fares by 10 per cent; to set up a De Luxe class of service in 1957, and bring in an entirely new class of low fare service for mass transport over this key world route early in 1958. Under the agreements, a transatlantic trip on a scheduled air service may cost as little as $232 one way between New York and London.

If approved by governments, the North Atlantic Agreements will come into effect in three phases over the 18-month period beginning October 1, 1956, when present approvals expire. Starting October 1956, the airlines will offer a new low 15-day excursion fare on present tourist class service, available all the year round at $425 round trip between New York and London, nearly $100 cheaper than the normal tourist fare. (London/New York is the basic rating segment for the North Atlantic. Fares between points will bear similar discount.)

The currently effective basic fares for first and tourist class—$440 and $290 one way respectively—will remain unchanged until April 1, 1957. Off-season round trip reductions hitherto offered during the winter will be abolished. During the period referred to as "offseason," family fare reductions will be continued, but will not be applied to the excursion tickets because of their already low price level.

A special emigrant fare will be offered between the dates of November 1 and March 31 for westbound traffic to the U. S. and Canada from European countries, excluding the United Kingdom, Spain and Italy, where other emigrant air transport schemes exist. It will cost 40 per cent less than the normal one-way tourist fare.

On April 1, 1957, the first class fare structure on the North Atlantic will be revised to provide two levels of first class service—normal first class and de luxe. The first class fare will be $400 one way and $720 round trip, the de luxe class will be $450 and $810, as against the present undifferentiated first class fare of $440 and $792.

The de luxe accommodation will include sleeperette types of seating. Berths will be available in both First Class services at an extra charge.

During this period, the Tourist fare will not be changed and the 15-day Excursion fare and Family Plan discounts will continue.

As a final step in the program, the airlines have commited themselves to institute on the North Atlantic as of April 1, 1958, a new class of tourist-type mass transport service at fares as low as $232 one way and $417.60 round trip, with full 12-months validity. This new low fare will be made possible by greater seating densities and by the elimination of all non-essential luxuries.

Other terms and conditions of the new low-fare, high density class will be determined at the next IATA Conference in the fall of 1957, at which time carriers will also decide what other classes of service they will offer as from April 1, 1958, and what the relationship between them will be.

Allowance must be made for some adjustment of this fare level at the next Conference because it is impossible to forecast the effect of world prices on airline costs 18 months ahead. In any event, it will probably remain 20 per cent less than the next higher fare level.

On the *Mid-Atlantic route,* the airlines will introduce a similar 15-day Excursion fare beginning October 1, 1956, at $97 below the normal round-trip Tourist fares. First Class will be reduced $30 one way, and an additional charge of $50 one way for sleeperette will be introduced.

The Offseason will be abolished and Family Fares retained.

Fares over the *South Atlantic route,* which do not expire under present government approvals until March 31, 1957, were left unchanged, subject to further discussion and mail vote later this year.

These quite revolutionary agreements three years after the institution of worldwide Tourist services, and at a time when the airlines must also be preoccupied with preparing for the jet era only a few years ahead, demonstrate the determination of the scheduled airlines to give the public the largest possible quantity of high quality transport at the lowest possible price. The new agreements involve projecting airline fares and rates levels as much as two years into the future, in the face of uncertain cost prospects. Up to now this industry has been able to run on 12-months' agreements at the longest.

International passenger fare patterns in other parts of the world were left largely unchanged by the Cannes Conferences.

The principal alterations proposed by the airlines were these:

The European fares pattern will show slight upward adjustments, with an extension of special night, off-peak and other promotional fares between many specific points. Special inducements will be offered to encourage inclusive tours. There will be some upward adjustments in fares from Europe to the Middle and Far East, from Europe to Africa, and between some African points, due to increased costs.

Many regional fares within the Middle East will be reduced by about 10 per cent. On the North- and Mid-Pacific routes, between Asia and North America, First Class fare reductions of $10 to Tokyo and $25 to other Asiatic points have been agreed upon. The Tourist fare will not be changed, but the airlines concerned will meet next spring to consider a possible low fare Excursion similar to that proposed for the North Atlantic. It was also agreed that fares between Europe and Tokyo via the North Pole will be the same as those between the same points via India. Generally, Polar fares between the West Coast of North America and Europe will equal fares for similar journeys via the East Coast gateways and the North Atlantic. The latter Polar services will adopt the same separation of De Luxe and normal First Class service as agreed for the North Atlantic.

General adjustments have been made to cargo rate levels to render it possible to carry further the development of new types of cargo traffic on

many routes by additional low rates for specific commodities. Except where otherwise noted, the new fares and rates will generally come into effect on October 1 or November of this year, or on April 1, 1957, and will remain in effect until March 31, 1958.

III. INTERNATIONAL CHAMBER OF COMMERCE (ICC)

GENERAL TRANSPORT COMMISSION

The General Transport Commission of the ICC met in Paris on May 18th, 1956, under the Chairmanship of Mr. R. Lemaignen. The decisions taken were as follows:

Contractual Freedom of the Parties with Regard to Transport Insurance. The Commission dealt with this problem in an effort to find a compromise between the protection of the national companies and the trader's freedom to contract his insurance in whichever country and through whichever insurer he felt would be most advantageous.

In this connection, the Commission decided to propose to the Council the immediate publication of Doc. 301/136, to serve as a basis for the representation made by National Committees and insurers to governments, and particularly to their delegates to GATT, in the hope that the Contracting Parties adopt in October the recommendation contained in ICC Doc. 301/136.

Taxation of Transport. No resolution was adopted on this subject but the Commission recognized that this complex problem required to be studied because in their view the level and variety of the taxation imposed on transportation was harmful to international trade.

The Commission decided to treat air-sea transport separately from inland transportation. It was recalled that governments had originally given favorable treatment in this respect to air transport enterprises in view of the contribution which air transport made to the economic development of the various countries. However, it was pointed out that governments tended to depart from this attitude. E.g. in France, which used to levy a very reasonable rate of turnover tax on French or foreign carriers, had in the last two years created a tax on import freight. The same applied in other countries and it was not only the rate that was to be regretted but also the complexity of these taxes and the way they were levied. As, in practice, an aircraft never covered the same number of kilometers, the result was that, to lay down the basis of the tax, the carrier itself was required to calculate the amount of its own taxes. Furthermore, with air tariffs established on an international basis, the carrier could not adjust the price of the ticket or of the freight to allow for an increase in taxes.

Furthermore, problems of double taxation arose when the transport document was taxed, first, in the country where it was issued and, second, in the country where it was actually used.

For the continuance of work in this field, it was necessary to distinguish between taxes constituting payment for a service performed, such as airport taxes, and the duties which conferred a contractual character on the air transport document, and consider only those taxes that went towards the general budget of a country or a district.

After discussion, the General Transport Commission also made decisions on *the Advantages and Drawbacks of the Various Methods and Measures of Coordination* and the *result of User-Carrier Consultations.* The Commission postponed until the next session discussion on the question of the *Transport of Perishable Foodstuffs* and suspended the follow-up on the question of *Tariff Differentiations* so long as the results of the work reported to be in progress at the ECE and the UIC were not known.

IV. OBSERVATION AND COMMENTS ON CASES INVOLVING FOREIGN ELEMENT

1. Chutter vs. K.L.M. Royal Dutch Airlines & Allied Aviation Service Corp. *(United States District Court, Southern District of New York, June 27, 1955)*
2. Scarf vs. Allied Aviation Service Corp. & T.W.A. *(United States District Court, Southern District of New York, Oct. 27, 1955)*

The facts of the first case are as follows: The Plaintiff had purchased a ticket from K.L.M. for an international flight on November 17th, 1950, which was to commence in New York and terminate in Athens, the agreed stopping places being Amsterdam, Madrid and Rome. When the Plaintiff was shown to her seat, and her hand baggage placed on the rack for her, the "fasten seat belt" sign was already lighted. The Plaintiff, however, did not sit down and fasten her belt but went back down the center passage to the doorway for the purpose of waving a final farewell to her daughter. In order to do so, she stepped out of the machine, expecting to step on to the ramp or loading steps. The ramp, however, was in the process of being removed by the Service Corporation. The consequence was that the Plaintiff fell to the ground with resultant injury. She did not travel on the plane; she was in fact removed to the dispensary and subsequently to hospital. (Plaintiff maintained that she had stepped on to the ramp but the evidence led the Court to determine that, in fact, she had stepped out of the machine into space, the ramp already having been withdrawn from the doorway of the plane.) The flight for which K.L.M. had contracted was due to end on November 17th, 1950. The Plaintiff raised the action more than two years after that date.

The Court in this case held that the flight in question was international and consequently governed by the terms and provisions of the Warsaw Convention, that K.L.M. had duly complied with all the requirements of the said Convention. Additionally, the court said that, whether the Service Corporation was agent of K.L.M. or an independent contractor was immaterial (inasmuch as it was the agency whereby the carrier was fulfilling a part of its obligation under the contract of transportation), and that the conditions and limitations of the Warsaw Convention inured to the said Service Corporation, as well as to the carrier (K.L.M.). Accordingly, the suit, which was brought against both carrier and Service Corporation, was barred owing to the fact that it was raised more than two years from the termination of the said flight, the Warsaw Convention prescribing a two years' time limit for so doing.

Additionally, as the injuries of Plaintiff were caused by or contributed to by her own negligence, such contributory negligence barred recovery against Defendants as a matter of law under Article 21 of the Warsaw Convention.

In the Scarf vs. Allied Aviation Service Corp. and T.W.A. case, the facts are as follows: At Gander, Newfoundland, as the Plaintiff was mounting the ramp to enter the plane in which he was due to travel, the propeller blast from another T.W.A. plane parked close by caused the ramp to move, thereby injuring passenger.

The Plaintiff sued the Service Corporation, asserting venue in the Southern District of New York. The Plaintiff also sued the carrier but only for negligence in permitting one of its planes to move in dangerous proximity to the plane which Plaintiff was boarding.

On motion, and under the terms of Articles 28 and 29 of the Warsaw Convention, the carrier (T.W.A.) procured an order dismissing the com-

plaint against it for want of proper jurisdiction. The motion to dismiss against the Service Corporation was denied, the Court stating that failure to assert other grounds for the motion indicated that the venue was proper, unless the treaty controlled.

The Court held that, unless the Warsaw Convention—which limits the places in which suit may be brought—controlled, the Court had jurisdiction. The complaint against the Service Corporation was good in law, whether for misfeasance or malfeasance, and additionally, that the tort of the Service Corporation was not the tort of the air carrier. From which it can be concluded that the benefits of the Warsaw Convention do not inure to the Service Corporation.

Dealing with the case of Chutter vs. K.L.M., the Court said that it understood that the Chutter case had been decided as presenting an issue of fact, that no question of venue was raised or decided and that the negligence attributed to the carrier was that of the principal for negligence of the Service Corporation as its agent. Accordingly the Court refused to follow the Chutter case.

There is a fine distinction between the two cases. In the Chutter case, Plaintiff alleged against the airline negligence for his agent, the Service Corporation. In the Scarf case, negligence was alleged against the carrier only in so far as it permitted one of its planes to move in dangerous proximity to the plane which Plaintiff was boarding but, in this case, apparently it was not alleged that the carrier is liable for the negligence of the Service Corporation. This led the Court to consider the case against the Service Corporation on its own merits provided that it had venue to deal with the case. By instituting against the Service Corporation an action based on a valid cause, other than the cause of action against the carrier, the Court has been given the opportunity to separate the two complaints (one against the carrier and the other against the Service Corporation) from each other, and as a result, the motion to dismiss was denied to the Service Corporation but the complaint against the carrier was dismissed.

The Court decided the case on the technical issue of venue. It took the position that the venue was proper in respect to the Service Corporation, unless the Warsaw Convention controlled. The Court then said that the failure to affix the landing ramp to the aircraft (whether from malfeasance or non-feasance) gives rise to a claim good in law and consequently denied the motion to dismiss to the Service Corporation.

It would be speculation to say what would have been the Court's position if the complaint had alleged negligence of T.W.A. in the operation of the landing ramp. In any event, the Scarf vs. Allied Service Corporation case should not be read further than it goes. In view of the fact that it had arisen on a motion to dismiss alleging specific ground, it would be premature to compare the statement in the Chutter case that conditions and limitations of the Warsaw Convention inure to the benefit of the Defendant, the Service Corporation, as the agency whereby the defendant airline was fulfilling a part of its obligations under the contract of transportation, with the principle implied in the Scarf case that the treaty (Warsaw) does not control the relationship between the passenger and the Service Corporation.

When the Court will deal with the merits of the Scarf case, it will probably consider Article 24 of the Warsaw Convention. It will be interesting to see whether the court will follow the Chutter case in the sense that, in the cases covered by Articles 18 and 19 of the Convention any action for damages, however founded, can only be brought subject to conditions and limitations set out under the Convention, or will it take the position that the treaty does not apply to the case against the Service Corporation.

Whatever the decision may be, it will help to eliminate the doubts which were created by the apparent though not real inconsistency of the two cases dealt with by the same court.

J. G. GAZDIK

Preston and Another v. Hunting Air Transport Ltd. *(High Court of Justice, Q.B. Div., January 30th, 1956)*

(Lloyd's List Law Reports, 1956, Vol. 1, pp. 45-50.)

Action was instituted by two infant children, Deirdre Evelyn and Nigel Philip Preston, of Njoro, Kenya Colony, against Hunting Air Transport, Ltd., of Pall Mall (through their next friend) before the High Court of Justice Queen's Bench Division, London, England, in respect of the death of their mother, Mrs. Sophie Marguerite Preston, in an air crash which took place in Sicily on February 16, 1952, when she was returning to Kenya as a passenger in an aeroplane owned and operated by the defendants. The plane was due to fly from London Airport to Nice, Malta and other places until it finally was to land at Kenya. Having stopped at Nice it took off again with the intention of flying to Malta, but it flew off course and struck a mountain in Sicily with the result that the whole of the occupants of the aircraft were killed. As a consequence the two children were left as orphans and had suffered a considerable loss in the care and financial assistance that their mother would have given them.

The plaintiffs claimed that they were entitled to the full measure of damage for the loss suffered by the death of their mother, as the defendants were not entitled to rely on Article 22 of the Warsaw Convention, which limited the damages, because the travel voucher issued to the deceased did not contain particulars of the agreed stopping places, and was not therefore a "passenger ticket" within the meaning of Article 3 of the Convention.

The defendants admitted that the plaintiffs were entitled to compensation, but relied on Article 22 of the Convention as limiting their liability, and contended that on a proper construction of Article 3(2) the ticket was a "passenger ticket."

Article 3 provides: "(1) For the carriage of passengers the carrier must deliver a passenger ticket which shall contain the following particulars: . . . (c) the agreed stopping places. . . . (2) The . . . irregularity . . . of the passenger ticket does not affect the existence or the validity of the contract of carriage, which shall none the less be subject to the rules of this Convention. Nevertheless, if the carrier accepts a passenger without a passenger ticket having been delivered he shall not be entitled to avail himself of this Convention which exclude or limit his liability."

Mr. Justice Ormerod, giving judgment, said that on the face of it, Article 22 limited the amount which he could award to £2,739 13s. 4d. Plaintiffs argued that Article 22 did not apply by reason of Article 3. Admittedly the defendants for some reason or other had failed to insert the names of the agreed stopping places on the ticket, and accordingly, it was contended by the Plaintiffs' attorney that it was not a ticket within the meaning of the article. There was no English authority on the point, but the Court referred to Grey v. American Airlines Inc. (1950 Fed. Sup. No. 95, 756), which was decided in the New York District Court, and in which exactly the same point was taken on the Convention. The Court decided in that case that there was a limitation of liability in spite of the fact that a ticket had not contained the names of the agreed stopping places. On the strength of that case, it was the conclusion of the Court that the fact that this passenger ticket was deficient in that particular (agreed stopping places) did not mean that no ticket had been delivered, and it did not mean that the plaintiffs could take advantage of Article 3(2) and pursue their action

without any limitation on the amount which was set out in Article 22. In all the circumstances, a sum of £2,420 (less than the Warsaw limit) was awarded.

It is interesting to note that the Court specifically referred to the deficiency in respect to agreed stopping places when it declared that the deficiency did not mean that no ticket had been delivered. In view of that, other possible deficiencies, such as an omission of the name of the carrier, the place of departure and destination or, for that matter, the omission of the statement that the carriage is subject to the rules of the Convention, may not be viewed in the same manner by the Courts although the distinction in the language of Warsaw Articles 3(2), 4(3) and 9 clearly indicates that the draftsmen of the Convention intended to differentiate between the passenger ticket and the baggage check and air waybill in respect to sanctioning of required particulars.

Perhaps it is worthwhile to mention that the fact that a U. K. Court took into consideration a judgment rendered in an American Court, although not without precedence, is a rare occasion and indicates that Courts, in interpreting the rules of the Warsaw Convention, will rely to some extent on foreign decisions dealing with the Convention.

J. G. GAZDIK

Missirian vs. Air France. *(Tribunal Civil de la Seine: January 11th, 1956)*

(Revue Generale de l'Air: XIxe Annee (Nouvelle Series—No. 1, 1956)

The wife of the Plaintiff was killed in an air accident (the plane in question belonging to Air France) on March 2nd, 1952, between Nice and Paris. The carriage in question was presumably "international" in the sense of the Warsaw Convention. On June 1st, 1954, the Plaintiff instituted a civil action against the carrier in order to obtain compensation for damages for the loss of his wife. This was estimated by Plaintiff at 25.000.000 frs., the carrier, according to the Plaintiff, being guilty of "faute lourde." During the public prosecution, three months after the accident, Plaintiff established himself as "partie civile," which means a civil party in a criminal case and which, as will be seen, has apparently important consequences.

By Article 25 of the said Convention, if the Plaintiff proves that death was due to the "dol" (or its equivalent) of the carrier, the present limit of 125,000 frs. (gold) is removed and the carrier may be required to pay such larger sum as the Court dealing with the case considers appropriate.

By Article 29 of the Warsaw Convention, suits must be raised within two years from the date of termination of the flight, and by the terms of Articles 28 and 29, such an action must be raised: a) before a Court of the carrier's domicile; b) before a Court of the place in which carrier has its head office, or of the place where the carrier had an office at, or through, which the contract was entered into; and c) the Court of the place of destination of the aircraft.

The outstanding points before the Court in this case were: 1) Had the Plaintiff, by establishing himself as a party in the case during the public prosecution, instigated by the chief investigating officer for fatal accidents and accidental injuries, three months after the accident and held before the Tribunal de Nice, the right to proceed before the Tribunal Civil de la Seine with a civil action on June 1st, 1954, after the expiration of the two years' period from the date of the accident, *i.e.*, bearing in mind the terms of the Warsaw Convention? 2) Had the carrier, by neglecting to correct certain defects, of which it was aware, in the organism of the plane, which crashed, been guilty of "dol," or of "faute lourde" comparable with "dol"?

The air carrier maintained that with regard to 1), the suit was barred

because it was brought as a civil action after the two years' time limit, and 2) that the carrier had not, in fact, been guilty of "dol" or its equivalent.

The Court came to the conclusion that the Plaintiff was entitled to proceed in the civil case seeking damages for the loss of his wife on the ground that he had constituted himself "partie civile" in the Public action. In the opinion of the Court, the basis of liability is the same fault which was the subject to the Public inquiry. Although this fault might not necessarily be of a criminal nature, the act which prompted the Public prosecution may, in certain cases, constitute fault under Article 25 of the Warsaw Convention. Article 3 of the French Criminal Code permits a party, suffering damages, to institute an action in damages as an accessory to the Public action. In the opinion of the Court, the Warsaw Convention which applied to the present case, did not exclude the application of this principle of Article 3 of the Criminal Code in the event the damage was caused by a fault, punishable under the Criminal Code and, at the same time, one which takes on the character of "faute lourde" in the sense of Article 25 of the Convention and of which proof must be made by the party suffering damages.

The Court came to the conclusion that the Plaintiff had the choice of proving the "dol" or "faute lourde" of the carrier either as a subsidiary during the public prosecution or as an independent civil action and that, in as much as the Plaintiff had made himself party in the criminal case three months after the accident, his civil action commenced on June 1st, 1954, was timely under the terms of the Warsaw Convention.

With regard to the question of "dol" or "faute lourde" on the part of the carrier, the aircraft in question, "Languedoc SO 161 FBCUM" was properly certificated and had been submitted for regular Bureau Veritas inspections. It was revealed, however, from the inquiry that technical abnormalities had been reported in October 1951 by several successive captains who had pointed out that the aileron controls were stiff. Between November 29th and December 9th, the aircraft had been in the workshops, and in the course of the aileron control inspection a broken pin had been found lodged in the grease of the co-pilot's control column mechanism.

On March 3rd the aircraft was scheduled to make the flight from Nice to Paris. During the take-off after the undercarriage had been retracted, witnesses noticed the aircraft to bank slightly towards the left. After a further 400 meters the aircraft, which should have, at that point, been turning towards the right, was seen to turn towards the left. Thereafter the left wing down attitude of the aircraft was seen to increase until the aircraft, in a tight turn, rolled over on its back and began to lose height rapidly. Contact with the ground was made by the aircraft in a nose-down inverted position on a course 180° to the direction of take-off—first contact being made by the left wing striking a tree.

Upon examination of the debris, it was concluded that the cause of the accident could not be attributed to engine failure. Attention was, however, drawn to an irregularity in that the 7 carburetor hold down screws on No. 1 engine had not been properly tightened—six were found to be completely loose.

Of greater significance, however, was the fact that the investigation revealed several broken links in the aileron control chain inside the co-pilot's control column. Of these, several were found to have been broken upon impact, but others were deduced to have failed prior to the accident. The probable cause of the accident was concluded to have been jamming of the controls due to the non-crimping of the cheeks of one of the links prior to the accident—one of the cheeks having been found after the accident lodged in the grease at the top of the co-pilot's control column.

The air carrier pointed out that it was possible for the control mechanism to function with a chain failure of the type concerned and that, moreover, non-observance of the failed part during routine inspection was understandable on the grounds that the construction of the particular type of aircraft was such as to make a thorough inspection extremely difficult.

The Court, however, maintained that in as much as the attention of the air carrier had previously been drawn to similar failures in the same type of aircraft, and especially in view of the previously reported difficulties with the controls of aircraft FBCUM, the air carrier was guilty of "faute lourde." In consequence, the Court condemned the air carrier to pay the sum of 6.000.000 frs. damages to the Plaintiff and to pay the expenses of his solicitor.

It is of interest to note that apparently the two questions, namely the question of limitation of action and the question of "faute lourde" were interrelated. The position taken by the Court would seem to indicate that had there been no allegation as to "faute lourde" (had the Plaintiff merely proceeded for recovery up to the Warsaw limit), it is conceivable that the action would have failed on the ground that ordinary negligence may not have been sufficient for the Court to consider such act similar to a criminal act in the sense of the French Criminal Code, and accordingly the fact that the Plaintiff established himself as a "partie civile" in the Public Hearing probably would have been immaterial.

S. F. MACBRAYNE

Della Roma vs. Air France et al. *(Tribunal de commerce de Marseille, November 3, 1955)*

(Revue francaise de droit aerien, 1956, p. 93.)

Facts: On February 3, 1951, a DC-4 aircraft of Air France, en route from Brazzaville (French Equitorial Africa) to Paris, crashed into the Cameroon Mountain in the British Cameroons. Amongst the passengers killed was one Mr. Della Roma. He had bought his ticket from Air France at Marseille, for transportation Marseille-Algiers and Brazzaville-Marseille, the return originally to be performed by another carrier and, according to the time-table generally referred to in the ticket, with stopping place at Kano in British territory. After the accident, his widow requested Air France—for herself and for a minor son—to pay the amount of French Frs. 2.220.000, due under an "automatic" passenger insurance policy of Air France. She accepted the policy conditions and waived all further claims against Air France, its insurers and its employees, whereupon Air France paid a first instalment of Frs. 500.000. Further payments were however deferred, because in the meantime the "Caisse regionale de securite sociale pour le Sud-Est," an organization which was obliged to pay social security disbursements to Mrs. Della Roma, objected by asserting recourse claims against Air France. In March and June, 1954, Mrs. Della Roma commenced legal proceedings against Air France, its insurers and "Caisse regionale," pleading nullity of the waiver and claiming full damages in the amount of Frs. 2.000.000. "Caisse regionale" joined the proceedings by claiming from Air France repayment of all its disbursements or about Frs. 3.000.000 respectively.

The Court: The case of Mrs. Della Roma against Air France has to be decided under the Warsaw Convention, because the stay at Brazzaville was provided for in the original contract and did not impair the unity of the transportation (Art. 1, para. 3). The fact that, contrary to the time-table in force when the ticket was bought, the time-table for the crashed plane

did not provide for a stopping place at Kano, did not impair the internationality of the transportation (Art. 1, para. 2). Liability actions not provided for in the Convention being excluded, all claims of Mrs. Della Roma (and of "Caisse regionale") in excess of the insurance sum of Frs. 2.220.000 are forfeited under the statute of limitation in Art. 28, para. 1 of the Convention. With regard to the case of "Caisse regionale," the automatic passenger insurance policy has to be treated just as an insurance contracted for by the passenger himself, and under the applicable rule of internal French law "Caisse regionale" is not entitled to any claim to the insurance sum.

Remarks: If, contrary to the situation as foreseen when the contract was concluded, there really was no stopping place outside of French territory provided for in the time-table for the crashed airplane, the correctness of the decision with regard to the international character of the transportation seems open to some doubts. It might be submitted that the parties originally having contracted an international transportation within the meaning of Art. 1 of the Convention, later on changed the substance of their contract by eliminating the decisive international element thus made the transportation a purely internal one.

DR. WERNER GULDIMANN

JUDICIAL AND REGULATORY DECISIONS

CONTROL ZONE ACCIDENTS—ALLOCATION OF LIABILITY BETWEEN AIR CARRIER AND CONTROL TOWER

THE INCREASING number of air accidents in airport approach zones and air traffic lanes has focused attention upon the division of legal responsibility between the air carrier and the traffic control tower, which is operated in most instances by the United States government.[1] Liability for these accidents may be placed on either the control tower operator or the airline, or, as a third alternative, it may be charged to the tower operator and the carrier jointly. The problem in this area is not the availability of remedy to an injured passenger, but in the adaptation of tort liability doctrines to the air accident situation so that legal responsibility will be properly divided between tower and carrier.

Two recent cases provide useful examples for a discussion of the division of liability between carrier and tower. *Eastern Airlines, Inc. v. Union Trust Co.*,[2] involved a mid-air collision between two planes flying within

---

[1] The United States government maintains and operates 165 of the nation's 200 air traffic control towers (1949 statistic) CAA Statistical Handbook on Civil Aviation, p. 21 (G.P.O. 1953). The operators of the non-Government control towers are subject to CAA licensing and must follow prescribed CAA procedures. 7 Fed. Reg. p. 742, Pt. 26 § 26.55 (1941).

[2] Union Trust Co. v. Eastern Airlines, 113 F. Supp. 80, 221 F. 2d 62 (D.C. Cir. 1955) aff'd as to U. S., rev'd as to Eastern, 350 U. S. 907 per curiam, rehearing granted 76 S. Ct. 429 (1956) (final decree pending). In the rehearing, the case was remanded to the Court of Appeals to allow that court to pass upon the several issues left undecided by the reversal. The crux of the Eastern litigation is a mid-air collision between the DC-4 operated by Eastern and a P-38 owned by the Bolivian government. The collision occurred within the traffic control zone of the National Airport when the P-38 struck the airliner from above as both ships were attempting to land on the same runway. This litigation was commenced by Union Trust Co., as executor of the estate of one of the deceased Eastern passengers. The suits were tried simultaneously in United States District Court and resulted in a jury verdict against Eastern and a bench decision against the United States, as operator of the control tower. On appeal, the Court of Appeals for District of Columbia affirmed the judgment against the United States and reversed the judgment against Eastern. The Supreme Court in a per curiam decision reversed the Court of Appeals on the liability of Eastern; subsequently on rehearing the Court modified the reversal, remanding the case to the Court of Appeals for hearing on the issues its decision left undecided. Certiorari on the case against the United States was denied.

This article will discuss the decisions against the United States and Eastern on the negligence issue. However, there were two other main issues in the case which should be mentioned.

One of the contentions presented by the United States was that the government had not consented to be sued for the negligence of its control tower employees. The basis of this defense was the Federal Torts Claims Act, 62 Stat. 983 (1948), 28 U.S.C. § 2680 (1952), which immunizes the United States from claims arising from the performance of a discretionary function. Both the District Court and the Court of Appeals held that the United States exercised its discretion when it decided to operate control towers, and once the Government operated a control tower, it could be sued for negligent operation. The courts reach this conclusion on the authority of Costley v. United States, 181 F. 2d 723 (5th Cir. 1950); Somerset Seafood Co. v. United States, 193 F. 2d 631 (4th Cir. 1951); and United States v. Gray, 199 F. 2d 239 (10th Cir. 1952).

The other main issue was the conflicts of law question—whether the Wrongful Death Statute of Virginia or of the District of Columbia was applicable. The Court of Appeals held that the Virginia Statute applied because the Federal Torts Claims Act states the law of the place where the government's negligence occurs is applicable.

an area regulated by an air traffic control tower. There the air carrier and control tower were held jointly liable. In *Smerdon v. United States*,[3] the question of responsibility for a landing accident was raised when the control tower granted the pilot's request for a visible flight rule clearance when instrument landing conditions existed.[4] The United States District Court of Massachusetts adjudged the air carrier responsible. Thus, a proper apportionment of liability for accidents of this nature may depend on the respective duties of the carrier and control tower to the injured air passenger and on an inquiry into the exclusive liability of the control tower when the carrier is not negligent in the performance of its duties.

THEORIES OF LIABILITY

At common law an air carrier is regarded as a common carrier and must exercise the highest degree of care for the safety of its passengers.[5] By application of common law concepts of tort liability, the control tower operator may also be held liable for a breach of duty which culminates in the crash of an aircraft relying on its instructions, if the instructions were negligently given or if its landing instruments were not kept in good repair.[6] The rationale of this doctrine, the "affirmative act" theory, is that

---

[3] Smerdon v. United States, 135 F. Supp. 929 (D.C. Mass. 1955). The relevant facts are: A plane owned by Old Colony Aviation, Inc. was approaching Logan International Airport in Boston under poor visibility conditions. The plane had an IFR (instrument flight rules) clearance, but on being able to see the end of the runway, the pilot requested a VFR (visible flight rules) clearance which was granted. As the plane drew nearer the airport, it encountered an area of fog and subsequently crashed into Boston Harbor, drowning one of the passengers. This action was brought against the United States as operator of the control tower by the administrator of the deceased's estate. The court held that the control tower had fulfilled its duty by reporting weather conditions at the airport to the pilot and had no duty to dispute the pilot's report that he could see the runway.

[4] A knowledge of the mechanics of air traffic control and the terms used will aid the reader in understanding this subject. An airplane landing at a controlled airport must obtain a clearance from the control tower when it enters the airport's approach zone. 14 C.F.R. § 60.18(b) (Revised 1952). Once in the approach zone, the plane must fly the prescribed traffic patterns of the airport until the tower grants the ship permission to land, a final clearance. 14 C.F.R. § 60.18(b) (c) (d) (Revised 1952).

The type of landing procedure depends upon the weather conditions. If visibility is good the pilot will land under visual flight rules, VFR; in a VFR landing a pilot brings his plane in by what he observes and the advice given him by the tower. 14 C.F.R. § 60.30 (Revised 1952). If visibility is bad, an instrument landing will be executed in which the pilot must depend wholly upon the control tower. 14 C.F.R. § 60.40, 43 (Revised 1952). There are two methods of instrument landing. In the first type, radio waves sent out from the tower appear on a gauge in the cockpit of the plane; the pilot, by watching this gauge and flying his ship so that the lines remain in correct relation to one another, is enabled to make a safe landing. The principle of the other method is for the tower to watch the approach of the aircraft on ground radar and "talk" the pilot in for his landing from what appears on the screen.

[5] The common instruction stating the air carrier's degree of care is similar to this one: an air carrier ". . . is bound to exercise the highest degree of practical care and diligence, and is liable for all matter against which human prudence and foresight might guard." Allison v. Standard Air Lines, 1930 U. S. Av. R. 292 (S.D. Cal.), aff'd 65 F. 2d 688 (9th Cir. 1933); Wilson v. Colonial Air Transport, 278 Mass. 420, 180 N.E. 212 (1932). This court in stating the air carrier's duty of care defined it as a high duty of care analogous to that imposed on other common carriers.

[6] Marino v. United States, 84 F. Supp. 721 (W.D. N.Y. 1947). The control tower was held liable for a ground collision between a plane and a maintenance tractor. See also, Johnson v. Western Air Express Corp., 45 Cal. App. 614, 114 P. 2d 688 (1941); Georger, Adm'x v. United States, 2 CCH Avi. L. Rep. 14,859 (E.D. Va. 1949). These cases do not hold the control tower liable because they

a rescuer (the tower) when it offers aid to a person in danger (the plane) is responsible for negligence on its part in the rescue operation if the victim relies upon its aid.[7] Joint liability would seem to be a proper solution in instances where the evidence indicates (1) that the air carrier was not exercising the highest degree of care; (2) that the tower was negligent in the manner in which it was attempting to help the airliner; and (3) it is impossible to determine whose negligence was responsible for the accident.

Even though the *Air Traffic Rules* of the Civil Aeronautics Authority do not determine legal responsibility, they are indicative of the respective duties of pilot and tower operator with respect to the proper operation and landing of the plane. The pilot is vested with final authority for the operation of his aircraft, and the regulations sanction his deviation from control tower instructions in emergency situations.[8] The regulations also require the control tower to issue clearances and other information for purposes of preventing collisions between aircraft, and aircraft and surface obstructions.[9]

The Eastern Case and Division of Responsibility

In *Eastern Airlines, Inc. v. Union Trust Co.*,[10] which arose as the result of a mid-air collision between two planes (an air carrier and a P-38 fighter plane) which were circling an airport under the instructions of the control tower, joint liability was imposed upon the tower operator and air carrier. The grounds for the air carrier's liability was the jury's finding that the pilot was negligent in that he deviated from the traffic pattern and made a final circle of the airport in preparation for landing before receiving *final* clearance from the control tower. The District Judge reserved to himself the question of the control tower operator's negligence and found the tower negligent for (1) failure to warn the airliner of the position of the P-38 on its final approach; (2) failure to inform the P-38 that the airliner had final clearance; (3) failure to keep both planes aware of the other's position; and (4) clearance of both planes to land on the same runway at approximately the same time.[11]

The Court of Appeals for the District of Columbia affirmed the trial judge's conclusion in regard to the tower's liability but reversed the verdict of the jury on the negligence of Eastern. The ground for reversal was that

---

accredit the accident to an act of God, but the tower would have been liable if the cause of the accident could have been traced to the tower's negligence. *Contra*, Finfera v. Thomas, 1 Avi. 949 (6th Cir. 1941). Tower is not liable for a ground collision.

[7] This theory is the one suggested by Mr. Eastman in his 1950 article in this journal on the Liability of the Ground Control Operator for Negligence. Eastman, Liability of the Ground Control Operator for Negligence, 17 J. Air L. 170 (1950).

[8] 14 C.F.R. § 60.2 (Revised 1932). The theory back of vesting ultimate responsibility appears to be based on the premise that the pilot, not the control tower operator, has the physical control of the airplane and legal sanction must be given the pilot to deviate from the regulations in an emergency. Such a sanction is consistent with the purpose of the regulations which is to make air travel as safe as possible.

[9] 14 C.F.R. § 617.21 (Revised 1952).

[10] Union Trust Co. v. Eastern Airlines, 113 F. Supp. 80, 221 F. 2d 62 (D.C. Cir. 1955) aff'd as to U. S., rev'd as to Eastern, 350 U. S. 907 per curiam, rehearing 76 S. Ct. 429 (1956) (final decree pending). This standard must be modified by saying that the Supreme Court recently modified its reversal of the Court of Appeals decision in favor of Eastern, remanding the case to the Court of Appeals for decision on the issues left undecided by their reversal. See note 2, *supra*, for a complete statement of facts.

[11] Ibid at p. 79.

sufficient evidence did not exist to show that Eastern had *not* received final clearance from the tower, and therefore, the trial judge should have directed the jury to answer the final clearance question in favor of Eastern. The Supreme Court reinstated the jury's verdict, holding that it was not within the province of the Court of Appeals to reverse the jury's conclusions on the evidence, and on rehearing, remanded the cause to the Court of Appeals for decision of questions left unsettled by its ruling.

The question presented by the *Eastern* decision is the application of joint liability in landing accident litigation where the control tower operator and the air carrier are co-defendants. Joint liability might be the correct decision in the *Eastern* case, if the air carrier did digress from the approach pattern without receiving final clearance, and if it is impossible to determine whose negligence caused the collision. By making these assumptions, the necessary elements of joint liability are present, *i.e.*, negligence on the part of both defendants and the impossibility of determining whose mistake was the cause of the accident. It would seem, however, that even if joint liability were the proper remedy, the procedure followed in arriving at this result was questionable. The decision was not the product of one trier of fact (either the judge or the jury) deciding the entire case, but the work of two triers of fact, each deciding a part of one case. The trial judge should have sent the question of the control tower's negligence to the jury with the question of the air carrier's negligence and instructed the jury to find either or both defendants responsible.

However, a finding of joint liability should never result if one defendant is at fault and the other is not. In the landing accident situation, the control tower should be liable if final clearance were given and the collision subsequently occurred. On the other hand, the airline should be liable if final clearance was not given and the crash occurred while the plane was out of flight pattern. The proper allocation of liability rests upon the determination of whether the tower or the carrier was the one who violated his duty immediately prior to the accident and whether this violation of duty could have caused the crash.

Several Conclusions—Division of Liability Between Control Tower and Air Carrier

It is suggested that liability should be placed on the carrier or tower under the following circumstances:

1. Clearly the carrier should be liable if an accident occurs while the pilot is disobeying the instructions of the tower, and no emergency exists.[12]

2. The carrier should be liable even if following instructions of the tower if it is proved that the pilot through the usual powers of observation attributable to pilots should have been aware of the danger and avoided the crash.[13]

3. The control tower should be liable for negligently given instructions or for unworkable landing instruments, if they cause an accident and it is shown that the pilot could not have observed the danger and avoided the accident.[14]

---

[12] The basis of this conclusion is 14 C.F.R. § 60.2 and 60.10 (Revised 1952).

[13] 14 C.F.R. § 617.21 (Revised 1952). This conclusion is consistent with the purpose of the regulations—safety. In order to achieve the highest possible degree of safety the regulations attempt to impose a duty on the person who had the last chance to avoid the accident.

[14] See note 6 *supra*.

4. The air carrier and control tower should be jointly liable only if both are negligent and it is impossible to determine whose negligence caused the accident.

Respective Liability in Landing Accidents

In *Smerdon v. United States*,[15] an action arising out of a crash which occurred on a visible landing attempt when instrument landing conditions existed, the United States District Court of Massachusetts held that the control tower operator was free from negligence. While recognizing that the control tower must maintain aircraft in his control zone safe from collision with one another and from danger arising from obstructions on the surface of the airport, the court held that the legal responsibility of the control tower did not include a duty to forbid a VFR landing when weather conditions on the field would render such an attempt hazardous.[16] The court ruled that it was the pilot's responsibility to decide the landing procedure to use on the basis of his own observations and the weather forecasts transmitted by the control tower.

Since the purpose of air traffic regulations is safety, the legal duties of control tower operators should not be restricted to the prevention of collisions. No satisfactory distinction can be made between acts which would make the control tower liable in collision cases and not liable for failure to forbid landings if weather conditions make them hazardous. An attempted distinction adversely affects the law of control zone accidents, because it makes liability turn on the classification of factual situations.

In allocating responsibility for landing accidents the courts should consider that the control tower has a duty to provide the pilot with information necessary for a safe landing, and that the control tower operator is in a better position to know landing conditions at the airport. To offset these responsibilities of the tower operator, the court must remember that the pilot is still "captain of his ship" and has physical control of it, and that the accident might have been an act of God.[17]

The court should consider these factors in this manner. First it should recognize that the tower, because of its location at the place where the plane will actually land, is in the best position to know if a landing may be safely attempted. The tower operator will have this knowledge from actual observation of the weather conditions and from reports of the pilots of aircraft that have previously landed. On the basis of this weather information available to the tower, the courts may determine if the tower transmitted proper landing orders to the incoming plane. If the evidence indicates that the plane crashed while following negligent orders of the tower and the pilot could not have had knowledge of the tower's negligence in time to avoid the accident, the tower should be liable. If the pilot disregarded the instructions of the tower or should have observed the immediacy of disaster and could have avoided it, the air carrier should be liable. If the evidence indicates that the accident cannot be attributable to either the air carrier

---

[15] 135 F. Supp. 929 (1st Cir. 1955). See note 3 *supra* for a more detailed statement of facts.

[16] 135 F. Supp. at 931. The court was basing its decision on § 617.4 of Title 14 C.F.R. which lists as the duties of the control tower (a) preventing collisions between aircraft and between aircraft and obstructions in the movement area; (b) expediting and maintaining an orderly flow of traffic; (c) assisting the person in command of an aircraft by providing such advice and information as may be useful for the safe conduct of a flight.

[17] See Johnson v. Eastern Air Express Corp., 45 Cal. App. 614, 114 P. 2d 688 (1941).

or the control tower but to a freak of nature, both should be relieved of liability under the theory of an act of God.

The present Regulations are not interpreted to impose upon the control tower the duty of closing the airport for the purpose of visible landing attempts under hazardous weather conditions. The *Smerdon* case has construed the regulations as not imposing a duty to forbid landing attempts if weather conditions render them unsafe. In order to impose the responsibility on the tower the Air Traffic Control Rules should be amended to include a provision which will make the control tower responsible for failing to forbid a landing attempt if conditions at the airport make an attempted landing unsafe.

The responsibility of the control tower is of a different character when only instrument landings are possible. Conditions which would make a visible attempt hazardous will not affect the safety of an instrument attempt if the equipment of the tower is in good working order. Thus, the tower in forbidding visible landing attempts should be permitted to sanction instrument landings. Because the pilot has little opportunity to observe danger under instrument landing conditions, the control tower has a greater legal obligation for safe completion of instrument landings than it has for visible attempts.[18] Thus, liability for an accident occurring during an instrument landing should be placed on the control tower unless it can be shown that the pilot made no attempt to fly by the instruments or instructions of the control tower.

The following suggestions are guides for allocating liability in landing accidents.

1. The control tower should have a duty to close the airport for visible landing attempts if weather conditions make such attempts unsafe.
2. The control tower should be liable if weather conditions exist which warrant the closing of the airport to visible landings, and a crash occurs during a visible landing attempt, unless the evidence shows that the plane had notice that visible landings were forbidden but attempted such a landing notwithstanding their prohibition.
3. The air carrier should be liable if the pilot could have observed the danger and avoided the accident or if negligent execution of the landing apart from the control tower's breach of duty caused the accident.
4. A freak of nature should relieve both tower and carrier from liability.
5. The control tower should be subjected to strict liability for accidents which occur on instrument landing attempts.

---

[18] 14 C.F.R. § 617.21(b)(2) (revised 1952). See Johnson v. Western Air Express Corp., 45 Cal. App. 614, 114 P. 2d 688 (1941); Georger, Ad'x v. United States, 2 CCH Avi. Rep. 14,859 (E.D. Va. 1949). This case involved the crash of an airliner flying on instruments, but not within an airport control zone. However, the instrument flight principle involved are similar to those appearing in an instrument landing crash.

The reason the control tower has a more strict liability for instrument landing accidents is that there is less opportunity for the pilot to observe danger. Therefore, the "captain of his ship" doctrine will not operate to shift liability to the air carrier. Yet, it is possible that if the control tower operator shows that the pilot could have observed the danger and avoided the accident, liability will shift to the air carrier.

CONCLUSION

The cause of any controlled approach zone accident is either the negligence of the air carrier or the control tower unless an act of God absolves both from liability. When the instructions of the control tower place the plane in the position from which the accident results, and the pilot could not have been aware of the danger and avoided the accident, the operator of the control tower should have to pay the damages. When the pilot could have observed the danger and avoided the catastrophe, the air carrier should be liable. The air carrier should also be liable if its pilot disobeys the tower. Joint liability should be the verdict only if there is a showing of negligence on the part of both the tower and carrier, and it is impossible to determine the primary tortfeasor.

The remedies for the present difficulties are: (1) to indicate to the courts the undesirability of joint liability and (2) to amend the Air Traffic Rules to require the control tower to determine whether or not a given weather condition is safe for a landing.

DIGEST OF RECENT U. S. CASES

CUSTOMS—UNANTICIPATED ENTRY INTO UNITED STATES—FORFEITURE OF UNDECLARED PROPERTY

United States v. 532.33 Carats, More or Less, of Cut and Polished Diamonds
2 CCH Aviation L. Rep. 17,982 (D. Mass., Jan. 19, 1955).

The claimant, an airline passenger enroute from Europe to Canada, was forced to deplane in the United States due to weather conditions, although no stop in the United States was scheduled or contemplated. While awaiting transportation to return him to Canada, he was approached by a customs official who discovered the diamonds in question, which the claimant was carrying on his person. The diamonds were seized, and the United States brings this action seeking to have its legal claim to the diamonds recognized, on the ground that, since the diamonds were not declared, they were subject to forfeiture as provided in 19 U.S.C. § 1497. The government's motion for a summary judgment was granted, the court holding irrelevant the fact that coming to the United States was contrary to the claimant's intention and reasonable anticipation. Since the traveler might take advantage of the accident or his misintended entry into the United States to make an importation that he had not originally contemplated, the government has a legitimate concern to discover what such a traveler has on his person or in his baggage. Therefore, the statutes should be strictly interpretated and every person entering the United States, regardless of his intent in entering, should declare his possessions, in order to protect them from forfeiture.

UNFAIR COMPETITION—SIMILARITY OF NAMES OF AIR CARRIERS—SUBSTANTIAL PUBLIC CONFUSION

American Airlines, Inc. v. North American Airlines, Inc.
351 U. S. 79 (April 23, 1956).

The CAB, after instituting an investigation under § 411 of the CAA, which enables the board, ". . . if it considers that action by it would be in the interest of the public . . . ," to investigate and determine whether an air carrier has been engaging in unfair methods of competition, decided that substantial public confusion had arisen between the names "North American Airlines, Inc." and "American Airlines, Inc." Since the confusion was likely to continue and constituted an unfair method of competition, the board issued a cease and desist order forbidding North American from operating under a name containing any combination of the word "American." The Court of Appeals, District of Columbia, interpreting § 411 in the light of § 5 of the Federal Trade Commission Act after which § 411 was modeled, set aside the order on the ground that the FTCA does not provide private persons with an administrative remedy for private wrongs, and that the public interest was not shown to be specific and substantial and did not demand the cease and desist order. The Supreme Court granted American Airlines certiorari and reversed the Court of Appeals, drawing a distinction between the CAA and the FTCA. The FTCA is concerned with purely private business enterprises which cover the full spectrum of economic activity, while the business conducted by air carriers is of especial and essential concern to the public. Furthermore, the CAB is an agency of special competence which deals only with the problems of the air transportation industry. For these reasons, the determination of public interest is to the judgment of the board, and the only questions for judicial review are whether, in reaching its decision, the board has stayed within its jurisdic-

tion and applied appropriate criteria. Since the board did not exceed its jurisdiction and had applied appropriate criteria, *i.e.*, high standards required of common carriers in dealing with the public, convenience of the travelling public, speed and efficiency in air transportation, and protection of reliance on a carrier's equipment, the judgment of the Court of Appeals was reversed, and the case was remanded for a determination whether the board's findings were supported by substantial evidence on the record as a whole.

In a dissenting opinion, Mr. Justice Douglas, joined by Mr. Justice Reed, argued that, to constitute a violation of § 411, there should have been a finding that the confusion arising from the use of the two names had actually caused some impairment of air service or that at least there was an immediate threat of such impairment, rather than a naked finding of "substantial public confusion."

WORKMEN'S COMPENSATION—USE OF PRIVATE AIRPLANE AS ACTING WITHIN SCOPE OF EMPLOYMENT

Indiana Steel Products Co. v. Leonard

2 CCH Aviation L. Rep. 17,998 (Ind. App. Ct., Jan. 10, 1956).

Beebe v. Horton

293 P. 2d 661 (Idaho Sup. Ct., Feb. 7, 1956).

In the *Leonard* case, the decedent was last seen alive entering his airplane and preparing to take off on an anticipated business trip. He was not seen again until his body was washed ashore some four months later on the opposite side of Lake Michigan from his intended destination. In the hearing on the application for workmen's compensation, the only evidence on the question of whether the decedent was acting within the scope of his employment at the time of his death was the testimony of a friend and fellow employee of the decedent, that the decedent had said that he was going to call on customers. Compensation was awarded. On appeal, the court, ruling that the above testimony was properly admitted under the present state of mind exception to the hearsay rule, upheld the award on the ground that using a plane to call on customers in furtherance of the master's business did not constitute a rash act on the part of the decedent, and that there was sufficient evidence to support a reasonable inference that the death arose out of and in the course of the decedent's employment. If the circumstances are such that a reasonable inference can be drawn that there was something connected with the employment which was responsible, then compensation can be given.

In the *Beebe* case, on the other hand, the Idaho Supreme Court, although purporting to give a liberal construction to the Workmen's Compensation Act, held that each case must be decided on its own facts. In this case the decedent, immediately before going to the airport, had been acting pursuant to his customary duties as manager of a nursing home. He then departed for the airport accompanied by one of his superiors, and the two men rented a small plane, the superior taking the controls. Although the purpose of the flight was not disclosed by the evidence, the plane was seen flying in the direction of the nursing home, and the place of the crash was only 100 to 150 feet from the land on which the home was situated. While these facts would establish some connection between the employment and the accident and would undoubtedly be sufficient to support the presumption employed in the *Leonard* case, the court reversed an award on the ground that the decedent's work did not create the necessity for such an airplane flight, nor was the flight reasonably connected or incident to his occupation as manager of the nursing home.

TAXATION—SITUS PRIOR TO FIRST INTERSTATE FLIGHT OF AIRPLANE PURCHASED FOR INTERSTATE COMMERCE NOT DETERMINATIVE OF SITUS FOR FULL TAX YEAR—RULE OF APPORTIONMENT GOVERNS

Slick Airways, Inc. v. County of Los Angeles
2 CCH Aviation L. Rep. 18,059 (Cal. D. Ct. of App., March 28, 1956).

The plaintiff, an interstate air carrier was authorized to transact business in California and conducted some of its business in the defendant county. Following the approved practice of taxation by nondomiciliary states of corporations engaged in interstate commerce, the defendant county assessed the plaintiff's fleet of airplanes on the basis of a fair allocation of time, to wit, the ratio of the time spent in Los Angeles County as compared to total time. However, the plaintiff had recently purchased a new airplane, and at the date of determining the taxable status of property, the plane had not made a flight in interstate commerce. Although the plane in question was purchased for the exclusive purpose of adding to the plaintiff's fleet of aircraft flying in interstate commerce, and although it was reasonably apparent that it would be in actual commercial operation during all of the tax year, except for that immediate period, the defendant determined that the plane was not then a part of the plaintiff's fleet, and classified it as an individual item of property, resulting in a higher assessed valuation. The plaintiff sued to recover the taxes paid under this increased valuation, and the court affirmed a judgment rendered in favor of the plaintiff. While the taxable status of property is determined in most jurisdictions as of some fixed date, the rule which allows a state in which property is physically located on a specific tax date to tax the property at full value must yield to the extent required by the due process and commerce clauses of the Federal Constitution, and the assessment of taxes on property which receives benefits in more than one state during the tax year is governed by the rule of apportionment.

CONDEMNATION—EASEMENTS—NO COMPENSATION FOR DAMAGES OR DIMINUTION IN PROPERTY VALUE RESULTING FROM FLIGHTS OVER LAND

United States v. 4.43 Acres of Land, More or Less
137 F. Supp. 567 (N.D. Texas Jan. 14, 1956).

The government brought condemnation proceedings to acquire by the right of eminent domain an easement extending outward from the ends of certain airport runways and over-lying privately owned property. The exact estate condemned, as set out in the Declaration of Taking, consisted merely of the right to remove and prohibit any obstruction from infringing upon or extending into or above the "glide angle plane." The government filed motions asking that the proceedings be referred to a commission under Rule 71A, Federal Rules of Civil Procedure, and further requested that the commissioners, if a reference were ordered, be instructed that just compensation extends only to the estate acquired and not to damages or diminution in value, if any, of the condemnees' land resulting from the flight of aircraft over such property. The court held that, because the easement and rights here condemned were unusual and presented exceptional and extraordinary circumstances, *e.g.*, the height of the "glide angle plane" above the ground varied from tract to tract, the differing degrees of development and divergent uses made of the different tracts, and the varying distances of the tracts from the airport, it was not an abuse of its discretion to refer the proceedings to a commission, even though the condemnees had demanded a jury trial.

In addition, the court held that the commissioners could not compensate for any damages occasioned or likely to be occasioned by the flight of aircraft in the airspace above the "glide angle plane." The government had not acquired in these proceedings the right to make such use of that airspace, but had merely acquired title to the exact easement or estate described in the Declaration of Taking. Although flying aircraft over the property here involved may constitute a "taking," and the land-owners may have a right to bring a separate suit against the government for damages or just compensation in such a situation, this right may not be asserted as a "counterclaim" in a condemnation suit.

TARIFF RATE—LIMITED LIABILITY OF CARRIER

New York and Honduras Rosario Mining Co. v. Riddle Airlines, Inc.
2 CCH Aviation L. Rep. 18,069 (N.Y. Sup. Ct., Trial Term, April 10, 1956).

Plaintiff, a mining company, made a shipment of bouillon from its mines in Central America to New York, the shipment being made by a foreign air carrier with the defendant as connecting and terminal carrier. In order to secure a reduced transportation rate, the plaintiff deliberately undervalued the shipment at the time of the delivery of the shipment to the initial carrier. The reduced valuation was inserted in the airway bill, which became the contract between the parties and which, by its terms, was binding on, and inured to the benefit of the defendant as connecting and terminal carrier. The initial carrier then filed with the CAB an amended tariff based upon the released value. Sometime after the shipment came into the hands of the defendant and before delivery at its destination in New York, half the bullion was lost, and the plaintiff sued to recover its loss. An award in favor of the plaintiff was limited to the value declared at the time of shipment. An agreed upon value in case of liability made for the purpose of obtaining a reduced freight rate, is binding on the shipper, even in case of loss or damage by the negligence of the carrier.

FEDERAL TORT CLAIMS ACT—CIVIL AIR PATROL NOT A FEDERAL AGENCY AS DEFINED IN THE TORT CLAIMS ACT

Pearl v. United States
230 F. 2d 243 (10th Cir., Feb. 8, 1956).

The decedent was killed while riding as a passenger on an official indoctrination flight of the Civil Air Patrol, and a complaint was filed seeking damages for the decedent's wrongful death under the Tort Claims Act. The court affirmed an order dismissing the suit, on the ground that the CAP was not a federal agency as defined in the Tort Claims Act. Because its primary objective is to promote the public welfare and not for the pecuniary profit of its members, it is clear that the CAP was chartered as an independent nongovernmental agency. Furthermore, since it is neither a wholly owned government corporation, nor a "mixed-ownership government corporation," but rather subject only to such control as Congress exerts over virtually all private corporations granted federal charters, the CAP should not be classified as a corporation "primarily acting as [an] instrumentality of the United States." The court further held that the mere fact that the plane involved in the crash was on loan from the Air Force did not constitute the pilot, a member of the CAP, an employee of the government.

BIBLIOGRAPHY

CURRENT LITERATURE ON AVIATION

BOOKS AND PAMPHLETS

Air Transport Association of America. AIR TRANSPORT FACTS AND FIGURES, 17th edition 1956. Washington, The Association, 1956. 24p.

Bridges, Roland W., ed. CROMER'S AIR TRANSPORTATION GUIDE; A HANDY REFERENCE BOOK AND GUIDE FOR ALL USERS OF AIR TRANSPORT, BOTH FOR PASSENGERS AND FREIGHT, BY SCHEDULED AND NON-SCHEDULED AND CHARTER SERVICES. London, Cromer Publication, Ltd., 143 London Rd., Kingston Surrey, England, 1955. Looseleaf. 65 shillings.

CIVIL AIR REGULATION AND REFERENCE GUIDE FOR A & E MECHANICS. 13th ed. Los Angeles, Aero Publishers, 1956. 120p. $2.00.

Gidwani, B. S. HISTORY OF AIR TRANSPORT. Bombay, Suneja Book Co., 1956. 117p. Rupees 4-8.

Hart, M. J. OUTLINE OF INTERNATIONAL AVIATION LAW. St. Louis, Parks College of Aeronautical Technology of St. Louis University, 1956. 143p. $3.25.

International Civil Aviation Organization. FINANCIAL DATA, 1954. ICAO DIGEST OF STATISTICS No. 55, SERIES F—No. 8. Montreal, International Civil Aviation Organization, 1956. 103p. $1.25.

International Civil Aviation Organization. AIRCRAFT ACCIDENT DIGEST No. 6. Montreal, International Civil Aviation Organization, 1956. 237p. (ICAO Circular 47-AN/42) $2.50.

JAHRBUCH DER LUFTFAHRT. Herausgegeben von K. F. Reuss. Mannheim, Südwest Deutsche Verlagsanstalt, 1956. 560p. DM 12.80.

Pépin, Eugène. GEOGRAPHIE DE LA CIRCULATION AERIENNE. Préf. du Dr. Ed. Warner. Paris, Gallimard, 1956. 341p. (Géographie humaine, 26) 1200 francs.

Schenkmann, Jacob. INTERNATIONAL CIVIL AVIATION ORGANIZATION. Genève, Libraire E. Droz, 1955. $10.00.
Doctoral thesis presented at the University of Geneva.

U. S. Aviation Facilities Study Group. AVIATION FACILITIES; THE REPORT TO THE DIRECTOR, BUREAU OF THE BUDGET. December 31, 1955. Washington, Bureau of the Budget, 1956. 46p.

U. S. Civil Aeronautics Board. MATERIALS RELATIVE TO COMPETITION IN THE REGULATED CIVIL AVIATION INDUSTRY, 1956. Transmitted by the Civil Aeronautics Board to the Select Committee on Small Business, U. S. Senate, April 18, 1956. Washington, U. S. Senate Committee on Small Business, 1956. 228p.

University of London. Institute of Advanced Legal Studies. UNION LIST OF AIR LAW LITERATURE IN LIBRARIES IN OXFORD, CAMBRIDGE AND LONDON. London, The Institute, 1956. 54p. (*Its* Publication No. 4)

PERIODICAL ARTICLES

Air Age; Man's New Way of Life in World Reshaped by Conquest of Skies. Life, June 18, 1956; 40, No. 25 (Special issue)

Air Transportation and United States Urban Distribution, by E. J. Taaffe. Geographical Review, Apr. 1946; 46: 219-238.

Annual Air Transport Progress Issue. American Aviation, Apr. 23, 1956; 19: 25-172.

Aspects of Airline Work, by D. M. Desoutter. Aeronautics, May 1956; 34: 32-46.

Aviation Liability Rules in the International Carriage of Passengers, Baggage or Goods in Aircraft—The Hague Protocol of 1955 to Amend the Warsaw Convention of 1929, by Gerald F. Fitzgerald. Canadian Bar Review, Mar. 1956; 34: 326-334.

Civil Aviation. Flight, Apr. 20, 1956; 456-484.
Special issue devoted to the airlines of the world, including a world airline directory.

Equity—Eminent Domain—Aircraft. University of Pittsburgh Law Review, Spring 1956; 17: 499.

A Graphical Solution of the Transportation Problem, by Marcello L. Vidale. Operations Research, Apr. 1956; 4: 193-203.

Here Comes the Jet Age! National Defense Transportation Journal, Mar./Apr. 1956: 36-41.

The International Character of the Airspace Over the Suez Canal, by James I. J. Hakim. Southern California Law Review, Feb. 1956; 29: 215-226.

Local Airlines Show Gains—the Hard Way, by George E. Haddaway. Flight Magazine, June 1956; 45: 36-39.
Seventh annual review of local air service progress.

Military Airline Outgrows Them All. Nation's Business, June 1956; 44: 29-31, 77-79, 89.
An account of Military Air Transport Service operations.

Oxford's Air Transport Course, by A. M. Ballantyne. Aeronautics, June 1956; 34: 46-47.

Remedies of Owners of Land Near Airports for Interference with Use of Land Caused by Low-Flying Aircraft, by Phillips M. Dowding. Washington and Lee Law Review, No. 1, 1956; 13: 109-116.
Case comment in *Gardner v. County of Allegheny,* 382 Pa. 88, 114A (2d) 491 (1955).

Resolving Land Use Conflicts Near Growing Airports; "What Legal Techniques Are Now Available and Used in Dealing With Airport Land Use Problems?" American City, Apr. 1956: 111-112.

Some Remarks on Private International Air Law, by S. I. Whitehead, Jr. Insurance Counsel Law Journal, Apr. 1956; 23: 221.

State Sovereignty in Airspace, by A. Kislov and S. Krylov. International Affairs (Moscow), Mar. 1956; 35-44.
Discussion of legal implications of the sending of U. S. "weather" balloons over Russian territory.

Status Lists: Convention on International Civil Aviation. U. S. Department of State Bulletin, May 14, 1956; 34: 822-825.

A Study in Financial Betterment. Aeronautics, June 1956; 34: 84-95.
A review of British Overseas Airways Corporation financies, 1940 to date.

Trends in Air Transport, by Donald A. Douglas, Jr. Flying, May 1956; 58: 28-29, 62-63.

FOREIGN ARTICLES

L'Astronautique et le droit, par Alec Mellor. Revue générale de l'air, No. 4, 1955; 18: 399-408.

Le Basi Internazionali degli ordinamenti aeronautici, di Amedeo Giannini. Rivista aeronautica, Mar. 1956; 32: 297-307.

Dommages causés par la circulation aérienne, par Jean T. Lacõur. Revue français de droit aérien, Jan./Mar. 1956; 10: 25-33.

Flughafenplanung Heute und Morgen, von Fr. von Buddenbrock. Weltluftfahrt, May 18, 1956; 8: 103-110.

La notion du "Transport international" d'après la Convention de Varsovie, par Michel Guinchard. Revnue française de droit aérien, Jan./Mar. 1956; 10: 14-24.

Le Protocole de La Haye, par André Garnault. Revue française de droit aérien, Jan./Mar. 1956; 10: 1-13.

BOOK NOTE

AIR CHARTER AND THE WARSAW CONVENION—A study in International Air Law. By Kurt Grönfors. 1956. 11/22. 143. Almqvist & Wiksell, Stockholm and Martinus Nijhoff, The Hague (Tice & Lynch, 12 State St., New York). Price, 12.50 Swedish Crowns.

The extent to which the famous Warsaw Convention of 1929 applies to air transport conducted under "charters" or leases has become an intricate problem. In far-away 1929, the business was conducted on a direct basis between a carrier and each passenger and each shipper of a parcel. The draftsmen did not envisage a single airliner flying from New York to Buenos Aires over the routes of three airlines, and changing crews at Miami, Panama and Lima. Nor did they think of the entire crew of an ocean ship, or a business or tourist group, hiring a plane for a voyage half-way around the world, with travel-agencies, freight forwarders and other intermediate forms of business intervention. The language which they chose was not that of the "Hague Rules" or Brussels 1924 Ocean Bill of Lading Convention, but considerably broader, and without direct precedent. In Chapter V, Professor Grönfors discussed not less than twelve situations relating to air charter.

Air charters within the United States have become familiar through the "non-sked" or "supplemental air carrier" activity. A lively air charter market operates internationally out of London. The CAB is now conducting an investigation of international air chartering. Mr. Grönfors's thorough study will be welcomed. It is another feather in the cap of the Institute of International Air Law of McGill University.

ARNOLD W. KNAUTH